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EDITORIAL NOTES

REAL HELP.

A member who contemplated the purchase of an X-ray outfit notified the JOURNAL office of his intention to make such a purchase and asked if it would be any help to us if he were assisted in this matter by some of our advertisers. It certainly was. It is just this sort of personal interest and co-operation that will make your JOURNAL a larger and a better publication. If all of our members would follow this example and purchase what they want through our advertisers, or at least take an interest in them and get them to see that advertising means real friendly relations, it would help the JOURNAL tremendously. All of our advertisers are reliable and their products are good; why not help yourself by establishing relations with them? In the first month after running the advertisement of the Uncle Sam Breakfast Food, which is a genuine article of merit, packed and advertised in ways that have been carefully scrutinized and approved by the Council on Pharmacy and Chemistry of the A. M. A., only eight requests for sample packages were received. This is certainly not the hearty co-operation which a concern is entitled to if it goes to the trouble and expense of changing its packages, labels and literature to conform to professional standards. Will you not fill in the coupon you will find attached to their ad and send it in? Take a little interest in the people who are taking enough interest in you to spend their money with you and so help your JOURNAL to be what it is and to grow. Incidentally, but of course you are not interested in this, *in many instances you will actually save money by trading with your own advertisers!*

"TO OUR ADVANTAGE."

Because all movement, all change, is oscillatory, we have the old saying that history repeats itself. And it surely does, for similar conditions will produce similar results until human nature changes a whole lot. So it is now. Toward the end of the war of the Revolution, the Jesuit missionaries in Mexico published a little pamphlet, now exceedingly rare (the only copy I ever saw or heard of was destroyed with all the rest of my library of Americana in 1906), with the title, freely translated, "The Present War and How It May Result to Our Advantage." To-day, considerably more than a century later, we find the public press of this country filled with articles on the subject of how the present European tragedy will result to our advantage. And it certainly will if we but keep our heads cool and do not become excited or hysterical. We are exceedingly fortunate in many ways. At the head of our government is a calm, thoughtful man whose judgment has been proven to be good, for whatever one's politics, he must admit that "watchful waiting," though perchance irksome to some, was masterly in its result; just now we would not look at all dignified if we were at war with Mexico! A man who, for many years, was a schoolteacher in its biggest sense and who knows the hysteria that comes over boys gathered together in bunches—and who also knows that men are only slightly older boys, subject to more or less the same influences. Again we are fortunate in that all the rest of the world wants this country to remain quiet and at peace; people who are too busy to produce, must be fed in some way, and we must be in a condition to produce food for them; and other things as well. Wisely, too, the moratorium (period during which financial liquidation is suspended) was declared and kept up; wisely the exchanges were closed, so that panic and slaughter of securities could not occur. To be sure, vast stores of our products are on our hands at the present time, their usual markets blocked, their usual channels of movement closed. But that will be but for a time; eventually they must be moved; the raw material, needed by the world, must be bought and moved and consumed—and paid for. Patience is what each one of us must cultivate; patience and calm and absolute neutrality.

It is not possible to blind one's self to the fact that nearly everyone is angry at Germany and blames the cause of the war upon that country. But let us try and avoid argument on the subject, for all argument amongst us who live in this land of peace, is and must be profitless and productive of nothing but hurt feelings. This is a war of surprises on every side and of wise moves and acts unprecedented. The German "Plan No. 2" for invading France failed because of two surprises: the almost unbelievable bravery of Belgium and the immediate introduction of England into the war game. To the thoughtful man it is clear that the war will last longer than many suppose, and hence, there will be ample time for our American manufacturers to increase their plants and to turn out products which heretofore we have bought

from other countries. Notably this must be the case with many drugs and chemicals and with instruments and the like. Immediate legislation in England and at home in the shape of shipping and marine insurance laws, was also a surprise and one tending to restore calm and render less long the period of inactivity in the movement of our products. So many and so essential have been the surprises that no one but a fool would attempt to prophesy what may happen to-morrow or the next day. Of one or two things, however, we may be sure. If we remain calm and neutral and at peace within and without ourselves, eventually this country will profit enormously. To be sure, all of Europe will be "broke" when the war is over, but it will recuperate; credits will have to be lengthened and readjusted; but the end is profit. There is no reason to be uneasy because the price of some things goes up; that is bound to happen. Also, the stoppage of certain business is bound to throw many people out of employment; but they will find other lines of activity, in time. The shoe will pinch here and there for a while, but it is bound to stretch and get shaped to the suddenly deformed foot, and eventually will become a very comfortable shoe. Let us thank God that we live in a land of peace, that we have wise guidance and an abundantly productive land, and let us look confidently toward the future, thinking as little of the ghastliness of the present, in other lands, as we possibly can. The war will result "to our advantage."

GRUESOMELY HUMOROUS!

Hearst, the advocate of Peace, with a capital "P"! One's stunned attention is diverted for a brief space from the unthinkable tragedy of Europe, by the vaudevillian floppings of the man who forced the newspaper war with Spain, had no words harsh enough for President Wilson because he would not make war on little Mexico, and now is for having the United States get very busy in the effort to secure universal Peace—with a capital "P"—and his best special writers pouring out columns of guff! A few brief weeks ago Hearst was hammering at Wilson for war; and now he is badgering Wilson for peace! Some things are funny, even in the midst of tragedy.

Eight nations of people suddenly decide to strive with might and main to put each other, in different groups, out of business in any way possible, and for that reason and purpose they have spent billions in accumulating death and murder dealing machines and methods. Everything is provided for the purpose of murder, by wholesale. To kill, in any way; from bombs in the air to mines under the earth and the sea; to kill is the thing desired. And then, forsooth, with all this preparation for killing in any way possible, one or the other of them complains that some other one is killing in not approved method! Insanity run riot; all sense of proportion and relative values gone. You may kill in one way, and it is quite all right; if you kill with some other sort of bullet, it is quite unfair! Was there ever such an utter absurdity! To steal unblushingly from someone else, it is like

opening the gates of the animal houses at the zoo, in front of a large crowd, after telling the animals that they may bite the people but they must not hurt them!

RIISING PRICES.

Complaint has reached the JOURNAL that certain firms are raising prices on commodities needed by physicians and their patients. In some instances this is true and in others it is not the case, though some increase, in a number of lines, must be expected. The American agents for the salvarsans have announced that they will not sell any of their stock to dealers but will sell direct to physicians, as long as the supply lasts, at the old retail price. Bischoff announces that they will not increase the price on their products as long as any stock remains, and Schering and Glatz have made the same announcement. Walters Surgical Co. have sent out a letter saying that they had made an immediate increase of 20% on certain lines of office and hospital fixtures. This would hardly seem fair, at the present time, as it would seem to be more appropriate when the price goes up on them. Lackenbach announces that he will continue to sell the salvarsans at the price of \$5.00 with the necessary apparatus for injection, but that none will be sold at the old price without the apparatus; as the importing agent has raised the price to the retailer and as Lackenbach's line of business is somewhat specialized, this seems to be not unreasonable. It is a bit difficult to say just when a rise in price is justified and proper and when it is not, but common sense and the matter of supply and demand will settle these things in the end.

COUNCIL MEETING.

A meeting of the Council of the State Society was held on September 12, at which meeting nine of the twelve Councilors and the President and Secretary were present. In view of the fact that the A. M. A. is to meet in San Francisco in June and that a considerable number of members had requested that the annual meeting of the State Society be dispensed with in April, 1915, because of the other and larger meeting in June, the Secretary was instructed to take a mail ballot of the House of Delegates to determine whether the meeting of the State Society should be omitted and things go along as they are until April, 1916.

Owing to the fact that considerable friction has developed on a number of occasions, when members sued for alleged malpractice held insurance policies in some company, between the attorneys for the company and the attorney for the Society, the following action was taken: The Secretary was instructed to notify any member who might be sued and who is insured in some company, that it will be necessary for him to choose which agency he will elect to defend his interests and the reasons for this; and further to notify him that the attorney for the Society will watch the conduct of the case and if necessary or desirable will advise with or co-operate with the attorney for the company. The object is not to avoid doing any of this work for our members, but to see that the work is done

in the best and most businesslike way; every member's interests will be watched and guarded without fail.

The question of the attitude of the State Society in the matter of proposed medical legislation was brought up and discussed, and a special meeting of the Council to consider this question was ordered called for Saturday, October 10, 1914, at 8 p. m., in the library of the San Francisco County Medical Society, at which meeting anyone interested in the subject is requested to appear and be heard.

The Secretary reported a steady growth in the business of the JOURNAL and the membership of the Society, which on that date amounted to 2456, the largest membership on record.

OUR REAL WORK.

Doubtless many of our members have an idea that publishing the JOURNAL once a month, collecting the accounts and keeping track of our membership is about all the work that the office of the State Society does. This is very, very far from the case and at the request of the President, a brief statement of some of the seldom-heard-of activities of the office are given. In the first place, our confidential records are almost invaluable; probably twenty-five thousand dollars would not suffice to secure the information on file. We have endeavored to find out something about every licensed physician and every quack in the state and no information is too big or too insignificant to be recorded. In many instances it has been only through our office that identity has been established, fraud uncovered or injustice corrected. That work in itself is very extensive and laborious and, of necessity, is of the most confidential nature; it is our aim to see that information shall be properly used and not made a weapon. Most of the employers of medical services fill vacancies through our office or come to it for information and we have furnished hundreds of physicians with locations, positions on salaries, and the like; this same sort of work applies too to nurses, office attendants, etc., and is very extensive; no charge is ever made for this work. The exchange, purchase and sale of locations is also a factor of considerable importance and we always have a number of such things on record in the office. The one object of the Secretary has been to make the office of the Medical Society of the State of California the one absolutely necessary clearing house or headquarters for all things medical; to make it the one place where accurate information in regard to medical affairs in California can be obtained, and to be of the greatest possible help to physicians in every conceivable way. For years it has been a rigid rule that no request for information shall be turned down; the address of the publisher of a medical journal, the title of a book; where to get a certain thing or where to find out certain information; no letter is ever unanswered and the desired information is secured or the enquirer told where he can get what he wants to know. As a matter of fact, the publication of the JOURNAL is one of the smallest pieces of work that goes on in the office of the Society.

A GOOD NUMBER.

What did you think of that Tuberculosis Number of the JOURNAL? A good many people thought it a pretty fine number and we thought so too. Several letters of commendation have been received about it and the State Board of Health took official recognition of it and of some of the editorial suggestions made in that issue. With the co-operation of our members and our advertisers, and their interests should be common, we expect to bring out a number of special issues, from time to time, and make them as notable as possible. You may have noticed, too, that the JOURNAL very frequently has eight or sixteen additional reading pages and that the number of illustrations is increasing as well as the quality of the articles published. There is room for lots of improvement, if you will help a little; an occasional two-cent stamp and five minutes of your time will not hurt either your purse or your work or your dignity—and it will help us a whole lot. Wilt?

PUBLIC HEALTH SERVICE EXAMINATIONS.

Examinations will be held in various parts of the country on October 19th for admission to the Public Health Service, and full information will be found on another page. Positions in the Service are desirable and permanent ones and this branch of the government medical activity should become increasingly attractive to young physicians as the Public Health Service grows in numbers and importance.

BUBONIC PLAGUE IN NEW ORLEANS.

As most of us know, what had been looked for for a long time happened in July and bubonic plague made its appearance in New Orleans in that month. Immediately the Public Health Service was requested to take charge of the situation and the old friends of San Francisco, Dr. Rupert Blue, now Surgeon-General of the Service, and his assistant, Dr. W. C. Rucker, went to work in New Orleans with the same energy and with the knowledge gained from their work with plague in San Francisco. Up to the end of August, there had been noted 23 cases of human plague and 82 cases of rat plague; others have occurred since that date. We may, however, have no anxiety as to the outcome as the Public Health Service has the situation well in hand and the destruction of rats is enormous.

NEW DODGE IN FAKERY.

Some of our wily friends (?) the advertising fakers have hit upon a new and clever dodge for fooling the unwary person with a few dollars who comes into their clutches. They get the price lists of some respectable drug houses and have sheets printed in the same general style as the sheets of the price list, which they insert in the book. These fake sheets give the enormous prices of their fake stuff, as for instance "cat serum," "lost manhood animal extracts," and the like. The Board of Medical Examiners is after them energetically.

AMERICAN MEDICAL MEETING.

Whatever you do, don't forget two things: The Exposition is to open its doors officially on the date originally designated and it is going to be a tremendous success; bigger than we could have expected. And also, the American Medical Association is going to meet in San Francisco in the third week of June 1915—June 22nd is the beginning of the week. Remember it and make your plans early so that you may attend this meeting. It is not very often that you will have the opportunity of attending a meeting of so many of the big ones of the land with so little effort of time and energy and of expense as will be the case next year; and it will do you a lot of good to meet them and to hear what they have to say.

PROGRESS OF PEDIATRICS.

I. PROBLEMS OF BREAST NURSING.

It has been shown that unless the breasts of a nursing mother are regularly and sufficiently emptied, the composition of the breast milk is changed by absorption. The protein and sugar are re-absorbed first, the fat is not absorbed as rapidly, so that the remaining milk is apt to be higher in fat and lower in protein and sugar than the milk normally secreted. Completely emptying the breasts is the best way to stimulate an increased flow. The quantity of milk secreted depends on the strength and weight of the baby. A strong baby is able to get more than a weak one, and consequently gets not only a larger supply but a supply of better quality, although the weak baby may need a larger quantity and a milk with a more normal composition. Both of these points as to the quality and quantity of breast milk are important questions, the regulation and careful management of which make for successful breast nursing.

Whenever lactation is interrupted for a few days or when the breasts are drying up, colostrum bodies, which are large leukocytes which have taken on the power of emulsifying fat drops and absorbing them, reappear and disappear when the breasts are sufficiently emptied of milk. The presence of the leukocytes is for the phagocytosis of bacteria. Staphylococci are often found in milk from healthy women. Normally these organisms have no pathogenic significance only in case there is an intestinal indigestion in the baby they may become pathogenic.

It is possible to greatly increase the quantity secreted ordinarily by demanding more from the breast glands. This is well illustrated in the case of a wet nurse, who not only nurses her own baby successfully but also produces from 700 c.c.

to 1000 c.c. of milk pumped daily from her breasts or in another case where the wet nurse successfully nursed five babies.

When cow's milk is acidified the resulting coagulum is large and comparatively tough while in human milk it is more difficult to obtain a coagulum. The precipitate is finer. This is due to the low calcium content in human milk as compared to cow's milk and to the relatively greater alkalinity of human milk. Casein or the insoluble proteid is present in considerably smaller amounts in human milk, while the soluble proteid, the lactalbumin and globulin are present in much larger proportions. The lactalbumin or whey of human milk is very much more easily digestible than is the lactalbumin or whey of cow's milk. In fact in certain types of metabolic derangements, the whey of cow's milk is positively injurious, while in the same cases human milk or the casein part of cow's milk is well tolerated. The recognition of this fact is important in the treatment of pronounced decomposition or atrophy cases.

In human milk, fat is found in a much finer emulsion than in cow's milk. The percentage of fat is lowest at the beginning of nursing and increases steadily till at the end of nursing it is highest. This is a very important consideration in the examination of breast milk. Often the first drawn milk will have only 1% of fat, and it seldom has as high as 3%, while the milk taken after the baby has nursed 10 or 15 minutes or the last of the milk pumped from a wet nurse who is accustomed to having her breasts pumped will often be as high as 6% or 10% fat. This fact alone accounts for the reason why so many mothers are told that their milk is too weak to nourish the baby. It must be remembered that due to nervous influences the first time a mother has her breasts pumped she is very likely to give up comparatively little milk, not because she is unwilling to do so but under the abnormal excitement of having her breasts pumped the glands do not secrete well. This is very well illustrated among wet nurses in a hospital where they have to pump their breasts. When they start out they are often only able to get from 15 to 30 c.c., after a few days of practice they are able to pump several 100 c.c. at a sitting. Not only does the amount vary in such cases but the whole analysis is different so that estimations made of breast milk are very unsatisfactory, misleading and of necessity erroneous. Of course, a person experienced in pumping milk from breasts can often succeed in getting a normal supply where an inexperienced person would fail utterly. This is amply illustrated in the hospital, the head nurse can obtain from 50 to 100 c.c. more milk when she pumps the wet nurses than when it is left to a pupil or a new nurse to pump.

A great deal has been written on whether it is possible or not to influence the quantity or quality of milk by varying the diet of the mother. In an underfed or improperly fed mother there is no doubt that quite marked success is obtained in not only increasing the amount but improving the quality of the milk though this does not always

hold true. Starving mothers, as was the fact in the last siege of Paris, were known to be nursing perfectly healthy babies who apparently increased in weight at a normal rate. If fat is given in the diet of an underfed woman the fat in her milk will increase up to a certain point. In mothers who are eating their normal amount of food both in quality and quantity little or no definite or permanent change can be made in either the quality or quantity of her milk supply. More is often accomplished in regulating the daily life of the mother, relieving her of fatiguing work or removing causes of worry and anxiety, seeing that she gets sufficient rest, unbroken sleep and a normal amount of recreation, than can be done by changes of diet and forced feedings.

Few drugs affect the secretion of milk, the glandular extracts of the posterior lobe of the pituitary body, the pineal gland and the corpus luteum, have been shown to exert more or less powerful influences on the quantity of milk secreted. Experimentally this is true, from a practical standpoint little has been done with any of these glandular extracts in their capacity of galactagogues.

At puberty the active development and internal secretions of the ovary stimulate the breast glands to growth but it is doubtful if the ovarian secretion is the cause of the hyperplasia of breast glands during pregnancy. Fetal extracts have been found to stimulate lactation more than ovarian but whatever the normal factors are in the development and activity of the breast glands during lactation they are illusive when used artificially. The most powerful stimulant is the active sucking of the infant and the natural law of increased demand by the infant is normally answered by an increased supply as is found in the vast majority of nursing cases and illustrated in a most demonstrable way in the case of wet nurses. On the side of the mother's nervous influences, a normal life from the standpoint of work and diet play the greatest role.

The presence of certain drugs in the milk when they are being taken by the nursing mother have been proven but they are only found in traces unless the amounts consumed are very large. Alcohol is found in milk only after the consumption of large amounts and then is found only in small amounts. Opium and atropin may be excreted in the milk, though they have never been demonstrated in human milk they have been found to go over into the milk of animals. Certain drugs are found in small quantities in the milk when they are being taken, such as potassium iodide, salicylate, aspirin, calomel, arsenic, mercury, bromides, urotropin, antipyrin, iodized oils, and the effects of saline cathartics are not infrequently noticed in the nursing baby. Salvarsan has been demonstrated in the milk of mothers who have had intravenous injections and improvement in the baby's condition is often very marked after maternal treatments.

Nervous influences, however, play the greatest role in the control of not only the amount of milk secreted but also have a very pronounced influence on the composition of the milk, often changing it

so that the baby is made most uncomfortable or even ill. What the chemical changes are, produced by such nervous influences, are not known, but certain it is from hundreds of close clinical observations. How often a mother's excitement over a theatre party, a dinner, or over the company of her friends in for afternoon tea or bridge, has meant an uncomfortable crying baby during most of the night, or an increase in the number of stools and the presence of mucus and of a green color that alarms the mother and she sends for the doctor. The avoidance of such nervous influences by giving a bottle feeding to the baby whenever the mother is under such excitement is one of the arguments for at least one substitute feeding a day. Anger, fright, grief, excessive sexual indulgence or physical fatigue may produce the same results.

The latitude given by allowing one bottle feeding a day often prolongs the period over which a mother is willing or even able to continue nursing as it will give her at some period of a day a six or eight hour interval in which to do as she pleases, go or come, work or play, as necessity or inclination demands. It also makes weaning much easier and more gradual. The baby is accustomed to the bottle and when it is increased to two and then three and finally complete bottle feedings, the transition is made with the least amount of trouble to both mother and child. If this is carried out 90% of mothers can or will nurse their babies the first three months and 50% will do so for over six months with quite a goodly proportion continuing to give one or two breast nursings till the baby is eight or ten months old. At that time most babies of American mothers should be weaned and a mixed feeding of milk and cereal started.

The transmission of toxins from mother to child through the milk has been proved. Vegetable poisons, alkaloids, glycosids and amids, as well as volatile and ethereal oils, and dibasic organic acids may go over in the milk.

Immunity both active and passive is transmitted by means of the milk from the mother to the child. The natural immunity of the newborn infant to certain of the contagious diseases is regarded as probably of intrauterine origin. The transfer of diphtheria immunity through the milk of mothers given antitoxin has been demonstrated. The infant acquires approximately from 1/15 to 1/30 of the amount of immunity acquired by the mother; the immune bodies are transferred in the lactalbumin and globulin of the milk.

There are few positive indications to weaning a newborn infant. Of course, if the mother has no milk, a wet nurse or substitute feedings must be obtained. Generalized active tuberculosis is one of the few positive contraindications to nursing. However, localized tuberculosis such as tuberculosis of the kidney, bone tuberculosis or glandular tuberculosis, does not necessarily preclude a mother nursing; it would then depend on whether the general health of the mother was impaired by the nursing; in some cases it undoubtedly would be, in others it would not. The chances of infecting the baby would have to be considered. In all chronic

diseases, as cardiac, nephritis, Basedow's, or very frail women, it is more a question of the effect on the mother's general condition and strength than on her actual ability to nurse her baby that must decide the question of weaning. Insanity is a contraindication unless someone is constantly with the mother during nursing and even then it is often a dangerous risk. Epilepsy is also a contraindication unless the mother can be watched during nursings. During prolonged, acute, infectious diseases weaning is usually to be advised because of danger of transmission and because the drain on the mother's strength is often too much. However, during short febrile attacks, if contagion or infection of the baby can be avoided or minimized, there is no need of weaning. Infection of the glands of one breast need not stop nursing of the other. In fact the infected breast will usually recover much more rapidly if it is thoroughly and regularly emptied by pumping out the milk, however painful this process may be.

In this as in most things, prevention is much to be desired over cure. Mastitis is at best a tedious and painful condition and can be successfully avoided by proper care of the breasts, a care which should begin at least six weeks before the baby is born, by regular massage, bathing and so hardening the nipples that they will not crack. If the nipples are washed off with boracic acid water two or three times a day and the breasts lightly massaged, retracted nipples pulled out either by manipulation or by suction with a breast pump, abrasions and cracked nipples will be less frequent and the greatest causes of infected breasts removed. The careful cleaning of the breasts before and after nursing are factors only to be mentioned to realize its importance. The complete emptying of the breasts is also a much neglected factor in the occurrence of breast infections. A vigorous, healthy baby will usually completely empty the breasts, but where this is not done a breast pump will prevent not only much discomfort by emptying the breast but will also prevent caking of the breast and will further prolong the activity of the breasts up to such a time as the baby is strong enough to empty the breasts by itself.

Menstruation does not usually affect the milk except in cases where the flow is excessive, in which case the quantity of milk may be diminished or if the mother is markedly weakened or indisposed, there may be a temporary change in the milk for the period of one or two days, during this time one or two extra bottle feedings may be instituted and nursing resumed when the mother is herself again. But to advise weaning because menstruation has begun is a mistake in the vast majority of cases.

Pregnancy in itself is an indication for weaning only after the third month. Often a pregnant mother is able to nurse without any effect on her general condition and health until the sixth month, after that it should be discontinued because of the mother's own condition, uncontrollable nausea or general fatigue or weakness being in themselves sufficient causes for weaning.

WILLIAM PALMER LUCAS.

ORIGINAL ARTICLES

DUODENAL FEEDING—A PRACTICAL DEMONSTRATION.*

By HARRY G. WATSON, M. D., Los Angeles.

The method of duodenal feeding was introduced about four years ago by Prof. Max Einhorn, whom I have had the pleasure of assisting for many years at the New York Post-Graduate Medical School and Hospital. The introduction of the duodenal tube has been a wonderful help in the diagnosis and treatment by medicines and food of gastro-intestinal disease, from babyhood to old age. The duodenal tube is a soft rubber tube about a meter in length and 3.5 m.m. in diameter ending in a gold perforated tip.

Dr. Einhorn's duodenal feeding apparatus is made by Tiemann & Co., of New York, and consists of the following:

1. The duodenal tube with a gold perforated tip.
2. A triple petcock, one rubber tube connecting with the duodenal tube, one with the glass of nourishment and the other with the glass syringe.
3. A flat piece of wood covering the glass.

The duodenal tube is swallowed by the patient at night and allowed to go as far as the line marked on the tube about 80 c.m. and the tip will then be in the duodenum. If there is obstruction at the pylorus or much pylorospasm the tube may be delayed or may not enter the duodenum at all. The principle of this method of feeding is to give the stomach rest, which you know is the best state for a diseased organ. The following are the principal indications for duodenal feeding:

1. Ulcer of the stomach and duodenum.
2. Any condition of the stomach where rest is indicated.
3. Gastroparesis with or without stasis where there is no organic obstruction.
4. Where nutrition by the stomach seems impossible as in cardiospasm, pylorospasm, nervous vomiting, or severe vomiting of pregnancy.
5. In inoperable malignant conditions of the stomach or cardia, if the tube can pass through the stomach into the duodenum, this will prevent vomiting and decomposition of food in the stomach.
6. Dr. Einhorn recommends it in cirrhosis of the liver.
7. In the treatment of amebic dysentery it is recommended by Dr. W. Gerry Morgan of Washington that the ipecac be administered direct with the duodenal tube. This is also recommended by Dr. Vedder of the United States army in connection with hypodermic injection of emetine which kills the ameba in the tissue while ipecac destroys them in the intestinal tract.

There are several ways of testing whether or not the tube is in the duodenum. If air is forced through, the patient can feel the air if the tip is in the stomach but not so if the tube is in the duodenum. Secondly, if the tip is in the

* Read at the Forty-fourth Annual Meeting of the Medical Society, State of California, Santa Barbara, April, 1914.

stomach an acid liquid will be aspirated unless there is achylia, while very little liquid can be withdrawn if the tube is in the duodenum, as it is usually empty and the reaction is alkaline.

Finally, if the patient be given a colored liquid to drink and the tube is in the duodenum the liquid withdrawn will be colorless but if the tip is in the stomach the liquid will be colored. Now that we are certain the tube is in the duodenum the feedings are given every two hours from 7 a. m. to 7 or 9 p. m. Each feeding consists of seven or eight ounces of milk, one raw egg and a tablespoonful of lactose. A tablespoonful of melted butter can be added to each feeding if the patient loses weight. This will bring up the day's food value to about 3000 calories, which are more than enough to sustain the nitrogen equilibrium and loss in weight. This food should be administered after it is strained, should be warm and given very slowly, requiring about twenty minutes.

The method of giving the food is simple if done properly but troublesome if done improperly as the tube will become clogged and necessitate its removal. If all goes well, the tube remains in the duodenum the whole time of treatment which is from two to three weeks.

This is the way the food is given: The food is drawn up with the syringe and then very slowly with a screw like motion is injected through the tube into the duodenum. This is continued until all the food is given. After each feeding, a little warm water should be injected through the tube and then a little air, so as to keep the tube clean and empty. Besides the feedings a pint of saline should be given once a day into the rectum by the drop method or through the tube into the duodenum.

Care should be exercised that the food is not injected too quickly or too hot or too cold as the duodenum is very sensitive, otherwise the patient will have a feeling of discomfort or nausea.

The feedings can be given by the nurse or by the patient provided a careful demonstration has been given. This method is now being used in many hospitals in this country and abroad and by many physicians in the homes of their patients.

RADIOLOGIC DIAGNOSIS OF GASTRO-DUODENAL ULCERS.*

By W. W. BOARDMAN, M. D., Assistant Professor of Medicine, Stanford University Medical School, San Francisco.

Gastric and duodenal ulcers produce functional and organic changes in the gastro-intestinal tract. Proper radiologic examination will graphically demonstrate certain of these functional and organic changes. In some, these demonstrated changes are so typical that a diagnosis of gastric or duodenal ulcer may be made on these findings alone; in others, this evidence is merely suggestive. In all cases, the radiologic evidence must be carefully correlated with the findings obtained by the other methods of examination. By this means and this

means alone can we obtain satisfactory results and avoid serious errors. The X-ray is not to be looked to as an infallible means of diagnosing gastric or duodenal ulcers. It is merely a procedure which, when properly applied and the results properly interpreted, is a most valuable addition to our other methods of examination and furnishes information unobtainable by other procedures.

During the past fifteen years and more especially since the introduction of the Rieder meal—a meal carrying three or four times the weight of bismuth subnitrate previously used—sufficient evidence has accumulated to enable us to define normal standards of shape, position, outline and motility of the various portions of the gastro-intestinal tract.

It is now recognized that the prime factor determining the shape and position of the normal stomach is the tonus of the gastric musculature and four definite types are described, the hypertonic, the orthotonic, the hypotonic and the atonic. This tonus, although an inherent property of the gastric musculature, is subject to nervous influences, locally through Auerbach's plexus and generally by way of the vagus and splanchnics. Other factors influencing the shape and position of the normal stomach are the quantity of gastric contents, the presence or absence of gas in the intestines, the position of the diaphragm, the size and position of the other abdominal organs, the condition of the pelvic floor and anterior abdominal walls, the posture of the bony skeleton and the position of the body.

The outline of the stomach, as seen either in the postero-anterior view or in the lateral view, is smooth and regular, showing the depressions produced by the peristaltic waves. Screen examination will show the gradual passage of these depressions toward the pylorus.

The motility of the stomach depends upon two factors, the peristaltic activity of the gastric musculature and the action of the pylorus. By means of the fluoroscope, one is enabled to note the depth and apparent force of the contraction waves and to divide cases into three groups depending upon the evidence of normal, increased or decreased peristaltic activity. Emotional reflexes, the nature of the food and abdominal massage may markedly alter the peristaltic activity.

The pylorus relaxes soon after the administration of the usual opaque meal allowing the passage of some of the material into the first portion of the duodenum. The relaxations and the contractions of the pylorus are, according to Cannon, controlled by the degree of acidity upon the gastric and duodenal sides of the sphincter respectively. The rate of gastric emptying depends, therefore, upon the combined action of gastric peristalsis and pyloric relaxation. The normal stomach empties itself in from two to four hours depending upon the character of the meal, the type of the stomach, the posture and the emotional state of the individual. The presence of a residue in the stomach six hours after the administration of the meal is conclusive evidence of the presence of some disturbance in the normal balance between the

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peristaltic activity of the stomach and the resistance offered by the pylorus or the small bowel just beyond. In practically all cases, this disturbance is found in the increased resistance offered by the pylorus or duodenum and not in the simple decrease in the force of the peristaltic contractions.

The duodenum does not lend itself so readily to direct radiologic examination as does the stomach. The first or ascending portion can, however, with proper technic be demonstrated in all normal cases as a more or less triangular area with horizontal base and apex directed upward. The base is almost completely separated from the pyloric antrum by the contracted pylorus, only a narrow shadow corresponding to the pyloric canal joining the two areas. This duodenal shadow should be of uniform density and regular in outline. The descending and transverse portions of the duodenum are rarely seen in radiologic examinations and are of little diagnostic importance. Special procedures may be adopted to facilitate the radiologic study of the duodenum such as the administration of a bismuth water mixture, which passes rapidly into the duodenum, especially if pressure be exerted on the pyloric antrum, the placing of the patient on the right side for several minutes after the administration of this meal, and the direct filling of the duodenum. The time of duodenal emptying is evidently dependent upon the time of emptying of the stomach. Any residue present in the duodenum after the stomach has completely emptied indicates disturbance in duodenal motility.

The filling of the normal stomach demands consideration. By virtue of the tonus of the gastric musculature, the walls of the stomach are constantly exerting a uniform pressure upon their contents, subject to local variations in pyloric antrum caused by the peristaltic contractions. As a result of this constant uniform pressure, the gastric contents do not accumulate in the most dependent portions of the stomach, but are molded in a more or less cylindrical form, the gas, which is normally present, occupying the highest level. In the fasting stomach with the patient erect, the screen shows the gas shadow directly under the left diaphragm. This shadow is roughly conical with its apex downward. As the opaque meal enters the stomach, it is seen to pass downward and to the left to the apex of this gas shadow where it accumulates for a moment before passing on into median and pyloric portions of the stomach. The amount of the meal accumulating here roughly measures the degree of tonus of the gastric muscle, since it shows the weight of the material necessary to overcome the muscle contraction. The meal descends into the lower portion of the stomach as a band-like shadow of practically uniform diameter, except for the appearance of peristaltic waves which are readily recognized. The stomach accommodates for increasing quantity of the opaque meal by a gradual and uniform increase in the transverse diameter of the stomach. With excessive quantities, the cardiac portion enlarges somewhat more than does the pyloric and median portions.

Gastric Ulcer, Simple.—With this brief review of the normal radiologic findings, we may consider the functional and organic changes resulting from the presence of gastric or duodenal ulcers.

Gastric ulcers are variously classified. For our purpose, we may recognize two groups: (1) The first group including those ulcers which produce no radiologically evident organic defects and manifest themselves only by functional abnormalities; (2) the second group including those ulcers which produce radiologically evident organic defects as well as functional abnormalities. In the first class will fall the simple ulcers with little or no scar contraction; in the second class, the chronic ulcers with scar contraction, the perforating ulcers and the penetrating ulcers.

The radiologic diagnosis of simple ulcer depends upon the recognition of various functional disturbances which experience has shown may be excited by such ulcers. These suggestive changes are:

1. Possible spasmodic filling defect in the greater curvature.
2. Possible spasm of the greater curvature.
3. Possible spasmodic hour glass.
4. Possible pressure tender point over stomach.
5. Possible six-hour residue.
6. Possible increased peristalsis.
7. Possible cardio-spasm.

Hemmeter and Jollasse, in 1906 and 1907, advanced the idea that simple ulcers might be diagnosed by the adherence of bismuth to the ulcer base after the rest of the stomach had emptied. Unfortunately, their experimental work has failed of confirmation and their clinical cases were probably not simple ulcers.

In observing the process of filling of the stomach, occasionally there is noted a defect on the greater curvature deeper and more abrupt than the depression caused by a peristaltic wave, showing no corresponding depression on the lesser curvature, nor any movement toward the pylorus. With increasing distension of the stomach, this defect may disappear or it may persist. Continued or repeated observations may demonstrate that this is not a constant phenomenon. Abdominal massage tends to accentuate the condition, injections of atropine to cause its disappearance. This defect is the result of a local spasm of the gastric muscle excited in the vast majority of cases by an ulcer on the lesser curvature at a point about opposite the site of the spasm. Such local spasms have been reported as occasionally occurring under strong emotional strain and reflexly from irritation about the appendix, gall bladder, duodenum, pelvic organs, etc.

The demonstration of a spasmodic hour glass contraction is one of the most striking indications of gastric ulcer. The condition may be evident during the filling of the stomach, may spontaneously come and go during the examination, or may only appear after abdominal massage. If present during the administration of the opaque meal, the material is seen to accumulate in the upper portion of the stomach as a more or less conical shadow with apex down. Usually

from the lowest point of this shadow, a thin stream of the opaque material may be seen trickling into the lower portion of the stomach. The rate of filling of this lower pouch of the stomach depends upon the completeness of the spasmodic contraction. Occasionally, under the influence of emotional reflexes, change of position, gentle abdominal pressure, or an injection of atropine, the spasmodic contraction disappears and the stomach suddenly presents a normal outline. Vigorous abdominal massage will frequently re-awaken the spasmodic contraction. The diagnostic significance of this finding is great, although cases occur in connection with extra gastric irritation and emotional disturbances. It is often exceedingly difficult to differentiate the spasmodic hour glass contraction from the organic hour glass contraction or from the hour glass contraction resulting from both organic and spasmodic contractions. Massage, change of position, atropine, frequent and repeated examinations will usually demonstrate the true nature of the contraction. A pseudo hour glass appearance is occasionally observed in atonic stomachs and in stomachs subjected to pressure by a descending colon distended with gas.

The finding within the stomach shadow of a localized area tender to pressure and moving with movement of the stomach is accorded considerable diagnostic importance by many Continental observers. The presence of such a definitely localized area of tenderness has been unusual and of little diagnostic value in my experience.

Delay in the emptying of the stomach in simple gastric ulcer is by no means constant. As there is no appreciable alteration in the peristaltic activity, such delay indicates disturbed pyloric function. Slight disturbance may be accounted for by the presence of an excess of hydrochloric acid which, by its action in the duodenum, delays the normal opening of the pylorus. A delay of six hours cannot be explained on this ground and is dependent upon pyloric spasm excited by the irritation from the ulcer. Such spasm is usually associated with ulcers near the pylorus.

Increase in the peristaltic activity of the stomach may be noted in cases showing delay in emptying and indicates the attempt of the gastric musculature to compensate for the increased resistance of the pyloric sphincter. The presence then of increased peristaltic activity with a six-hour residue evidences an obstruction. The demonstration of the type of the obstruction, whether spasmodic or organic, is frequently difficult. The administration of the bismuth water mixture, frequent repeated examinations, especially after the administration of atropine, the use of Einhorn dilators, etc., will usually decide the question. With simple spasm of the pylorus, there is no irregularity of the pyloric antrum, pyloric canal or duodenal cap; in organic obstruction, such irregularities are the rule.

Cardiospasm, with resulting delay in the entrance of the food into the stomach, is occasionally excited by ulcers in the cardiac portion of the stomach. The presence of gastric ulcer must

therefore be considered when cardiospasm is demonstrated.

The demonstration of one or more of these conditions is suggestive but not diagnostic of simple gastric ulcer, since each one although occurring most frequently with gastric ulcer may be excited by other gastric or extra gastric conditions.

Gastric Ulcer, Organic.—We recognize three types of ulcers producing radiologically demonstrable organic as well as functional abnormalities. In the first group we place the chronic indurative ulcers found along the lesser curvature and about the pylorus; in the second group the perforating ulcers; and in the third group, the chronic penetrating ulcers.

Indurative Ulcer.—The radiologic evidence of chronic indurative ulcer of the middle of the lesser curvature differs in some respects from that of chronic indurative ulcer about the pylorus, so they will be considered separately. Chronic indurative ulcer of the middle of the lesser curvature may show the following changes:

1. Possible filling defect of lesser curvature.
2. Possible spasmodic filling defect of greater curvature.
3. Possible local spasm of greater curvature.
4. Possible hour glass stomach.
5. Probable displacement of pylorus to the left side.
6. Possible pressure tender point.
7. Possible interference with the free movement of the stomach on respiration, palpation, forcible contraction of abdominal muscles, or change of posture.
8. Possible displacement of duodenal cap.
9. Possible six-hour residue.
10. Possible increased peristaltic activity.
11. Improbable dilatation and atony of stomach.
12. Improbable reversed peristalsis.

The filling defect of the lesser curvature is occasionally observed as a disturbance in the smooth and regular passage of the opaque meal along the lesser curvature. It is usually more readily demonstrated by the administration of the bismuth water mixture than by the regular opaque meal. If the induration is marked and properly located, the defect will be evident after the administration of the entire opaque meal. In the full stomach the defect is usually slight, manifesting itself more frequently as a lack of the normal sharp clean-cut edge of the stomach shadow than by any gross irregularity. A right lateral view will occasionally demonstrate such a defect not apparent in the usual antero-posterior view.

The spasmodic filling defect and the local spasm of the greater curvature, as well as the spasmodic hour glass contraction, have the same origin and significance as in the simple gastric ulcer. As previously mentioned, it is important and usually possible to differentiate between organic and spasmodic hour glass. It is more difficult to recognize the hour glass due to combined organic and spasmodic contraction. Hertz has called attention to an interesting type of hour glass stomach found especially in these chronic saddle ulcers and radiologically evident only with the patient in the

upright position. There is rarely any difficulty experienced in recognizing the hour glass stomach produced by gastric carcinoma. Syphilis may produce a partial hour glass contraction; the isthmus is apt to be much broader and wider than in the true hour glass.

The normal pylorus lies slightly to the right of the midline. The presence of a chronic indurative ulcer may so shorten the lesser curvature and alter its normal contour that the pylorus is drawn more or less to the left side.

The presence of a pressure tender point needs no further comment other than that it is probably more frequently found in this and the succeeding types of ulcer than in the simple ulcer.

The normal stomach being firmly fixed only at its cardiac and pyloric portions enjoys a considerable range of motion with forced respiratory movements, vigorous contraction of the abdominal muscles, change of body posture, and direct abdominal pressure. In this type of ulcer, such free movement of at least a portion of the lesser curvature is usually absent. It must be remembered that liver abscess or other liver enlargements, gastric carcinoma, etc., may cause a similar limitation of motion.

Displacements of the duodenal cap naturally follow the left-sided displacement of the pylorus previously described. The cap is then seen tilted to one side or the other, usually the right side, instead of sitting squarely on the pyloric antrum. There is, however, such a wide range of position for the normal duodenal cap that such evidence is but of minor importance.

Distortions of the duodenal cap may result from the presence of adhesions between the duodenum and the ulcer. Such distortions are, however, difficult of positive recognition and may result from such a variety of lesions (duodenal ulcer, gall bladder disease, etc.) that in the average case they are of little diagnostic importance. If, by special methods of investigation, such distortions are definitely demonstrated to be constant, they assume much greater importance. The recognition of their cause, however, still remains a difficult problem.

As in the simple ulcer, so in this type of ulcer, the occurrence of a six-hour residue is by no means constant. Its presence indicates pyloric obstruction, the nature of which, organic or spasmodic, can usually be determined as already described.

The occurrence and significance of increased peristaltic activity in conjunction with pyloric obstruction has already been considered.

The occurrence of dilatation and atony and reversed peristalsis is very unlikely. Their consideration may be deferred till later.

Indurating Ulcer about Pylorus.—The radiologic evidence of chronic indurative ulcers about the pylorus may be summarized as follows:

1. Possible spasmodic filling defect of greater curvature.
2. Possible local spasm of greater curvature.
3. Probable irregularity in the outline of pyloric antrum, pyloric canal or proximal portion of duodenal cap.

4. Probable disturbance of the peristaltic activity of lesser curvature near the pylorus.

5. Probable unusual fixation of pyloric portion of stomach.

6. Probable increased peristaltic activity.

7. Possible pressure tender point.

8. Probable six-hour residue.

9. Improbable dilatation and atony of stomach.

10. Improbable reverse peristalsis.

The significance of the local spasmodic contraction has already been considered.

As a result of the induration of the stomach wall and the presence of peritoneal adhesions, the outline of the pyloric portion of the lesser curvature is frequently irregular and poorly defined, and the usual peristaltic contractions in this region may be absent, the indurated wall preventing their appearance. In several cases I have observed a horizontal position of the pyloric portion of the lesser curvature, apparently explained by the fixation of this portion of the stomach to the under surface of the liver. A similar appearance is sometimes noted in cases presenting marked enlargement of the liver from various causes.

A further result of the presence of the thickened scar tissue is frequently evidenced by the ragged irregular outline of the pyloric antrum and by our inability to satisfactorily demonstrate the pylorus, the pyloric canal or the duodenal cap. If the duodenal cap be demonstrated, it is apt to be distorted or displaced. Pyloric carcinoma may produce somewhat similar findings, but the differentiation is readily made.

The finding of abnormal fixation of the stomach, the occurrence of increased peristaltic activity with delay in emptying and the presence of a pressure tender point need no further discussion.

A six-hour residue is common, but may be absent in this type of ulcer. It is dependent upon pyloric obstruction usually of organic origin.

If the organic obstruction be of high degree, marked retention with dilatation occurs. The dilated stomach may lie almost entirely to the left of the midline. However, in extreme cases, the pyloric portion may lie well to the right of the spine. The occurrence of reverse peristalsis is rarely observed and merely indicates a high degree of pyloric obstruction. Atony occurs as a late change and is readily recognized by the sagging of the stomach and the accumulation of the opaque meal in the most dependent portion.

It is thus seen that in chronic indurative ulcer, as in the simple ulcer, the radiologic examination furnishes very suggestive and valuable evidence which, however, demands careful interpretation, since pyloric carcinoma, syphilis, gall bladder disease, duodenal ulcers, chronic appendicitis, etc., may each produce one or more of the gastric changes just described.

Perforating Ulcer.—The radiologic evidence of chronic perforating ulcer is usually more striking and absolute than in the preceding types. The findings may be summarized as follows:

1. Possible filling defect or local spasm of the greater curvature.
2. Possible hour glass contraction.

3. Irregularity of the stomach outline, usually of the lesser curvature, together with the presence of a shadow beyond the stomach area but closely connected with it.

4. Possible disturbance of peristaltic activity.
5. Unusual fixation of that portion of the stomach showing the projecting shadow.
6. Possible pressure tender point.
7. Possible displacement of pylorus to the left.
8. Possible six-hour residue.
9. Possible dilatation and atony.
10. Possible reverse peristalsis.

Hour glass contraction is very common in this type of ulcer and is frequently partially organic and partially functional.

The characteristic finding is a shadow outside the normal stomach area. This depends upon the presence of the opaque material within the crater of a chronic perforating ulcer. The ordinary postero-anterior view will demonstrate such perforating ulcers, if the perforation be at right angles to the lesser curvature. Right lateral views will demonstrate those arising from the anterior or posterior surfaces of the stomach. Frequently that portion of the opaque meal lodged in the deep crater of the ulcer is retained after the stomach proper has emptied itself. The demonstration of this projecting shadow is not only characteristic of a chronic perforating ulcer, but definitely locates its position. Deep carcinomatous ulcers may show irregular shadows, but should cause no confusion in diagnosis.

The other possible findings need no further discussion other than to state that, as the pylorus is frequently uninvolved, a six-hour residue may be absent. When it occurs, it results either from organic or spasmodic contraction of the pylorus, or from a tight hour glass contraction which causes delay in the passage of the opaque material to the pyloric portion of the stomach. Here the six-hour residue may be seen in the cardiac pouch of the stomach.

As has been stated, there is at times a six-hour residue retained in the crater of the ulcer.

Acute perforating ulcers are rarely subjected to radiologic examination. Cases recovering without surgical intervention show more or less marked deformities as a result of the perigastritis excited by the perforation. The deformity is apt to be an organic hour glass.

Penetrating Ulcer.—The radiologic findings in chronic penetrating ulcer, as in chronic perforating ulcer, are characteristic and diagnostic. They may be summarized as follows:

1. Possible filling defect or local spasm of the greater curvature.
2. Possible hour glass contraction.
3. Presence of opaque material in an area outside of the normal stomach shadow and surmounted by a small gas shadow.
4. Possible disturbance of peristalsis.
5. Unusual fixation of the stomach at one point.
6. Possible pressure tender point.
7. Possible six-hour residue.
8. Probable six-hour residue in abnormal area.

9. Improbable dilatation, atony and reverse peristalsis.

Here the characteristic finding is the presence of opaque material in an area outside the normal stomach area and surmounted by a bubble of gas. This results from the presence of the opaque material in the cavity produced by the extension of the ulcer into the liver, pancreas or other nearby structures. The cavity may be more or less distant from the stomach, the sinus connecting it with the stomach usually being evident in the radiographs. The upper border of the opaque material assumes a horizontal position, the remainder of the cavity being occupied by gas. As a rule, a six-hour residue is retained in this cavity.

Duodenal Ulcer, Simple.—Duodenal ulcers most commonly occur in the first or ascending portion, that portion which lends itself most readily to radiologic examination. As with gastric ulcers, we recognize two groups, one evidenced only by functional changes, the simple duodenal ulcer, the other showing both functional and organic changes, the chronic ulcer with scar formation, etc.

The radiologic evidence of simple duodenal ulcer, while not direct and positive, is usually very strongly suggestive and may be summarized as follows:

1. Probable normal stomach, frequently of hypertonic type.
2. Improbable spasm of greater curvature.
3. Probable increased peristaltic activity in stomach.
4. Probable early emptying of stomach.
5. Possible pressure tender point over duodenum.
6. Possible delay in passage of duodenum.

The demonstration of a radiologically normal stomach, or one showing practically none of the changes of gastric ulcer, is important in that it tends to exclude the stomach as the site of the morbid process. Rarely, a slowly moving spasm of the greater curvature may occur (Carman) but lacks any specific diagnostic value. Hypertonicity is occasionally noted normally but is especially common in simple duodenal ulcer. It is also associated with disease of the gall bladder.

In simple duodenal ulcer, early emptying of the stomach is very commonly noted, no residue being found in the stomach after one or two hours. As has been said, the rate of emptying of the stomach depends upon the force of the gastric peristalsis and the resistance of the pyloric sphincter. Peristaltic activity is usually quite markedly increased in this type of ulcer, the peristaltic contractions appearing much deeper and at times more numerous than normally. Carman has recently especially emphasized this frequent association of duodenal ulcer with this type of gastric peristalsis. Pyloric resistance is also apparently decreased in simple duodenal ulcers as the opaque material enters the duodenum earlier and more rapidly than normally. Whether this early and frequent relaxation of the pylorus is dependent upon a more rapid neutralization of the acid chyme in the first portion of the duodenum or to some disturbance of the pyloric reflex itself, is not yet

clear. This picture of increased peristaltic activity with early emptying is frequently noted in gastric carcinoma without obstruction.

The demonstration of a pressure tender point definitely located over the duodenum has in my experience been unconvincing. Such pressure tender points, when present, probably indicate local peritoneal inflammation.

The lagging of the opaque material in the duodenum to such a degree that the greater portion is outlined, although occasionally seen in duodenal ulcer, occurs also in various other conditions. It therefore lacks any diagnostic significance.

Organic.—Chronic duodenal ulcers with scar contraction may present the following radiologic evidence:

1. Probable normal stomach.
2. Improbable spasm of the greater curvature.
3. Possible hypertonic stomach.
4. Possible dilated stomach.
5. Probable increased peristaltic activity.
6. Probable six-hour residue.
7. Possible pressure tender point over duodenum.
8. Probable distortions or irregularities of duodenal cap.
9. Possible residue in duodenal cap.

The first three findings have already been considered.

Dilatation of the stomach occurs as a result of obstruction and retention as in gastric ulcer with obstruction. In duodenal ulcer, the pyloric portion of the stomach is usually more to the right side than in gastric ulcer with obstruction. Increased peristaltic activity is apt to be present either with the hypertonic stomach or with the dilated stomach.

The six-hour residue is the result of duodenal obstruction from scar contraction and may be of an extreme grade.

The indurated ulcer area produces more or less distortion and irregularity of the duodenum radiologically evident in the outline or position of the duodenal cap. The demonstration of such permanent irregularity or distortion is sometimes readily accomplished, but often requires the use of special methods, frequently repeated examination, radiographs with the patient in different positions, direct filling of the duodenum, etc. The presence of a constant defect in the duodenal cap evidences the presence of some definite morbid process, which may, however, be secondary to gall-bladder disease and various other conditions as well as to chronic duodenal ulcer. With chronic penetrating or chronic perforating duodenal ulcer, we may find the opaque material beyond the normal duodenal shadow as in similar ulcers of the stomach. Duodenal diverticulitis will give a picture closely simulating a penetrating ulcer of the duodenum.

A six-hour residue in the duodenal cap or a residue in the duodenum after complete emptying of the stomach indicates duodenal obstruction. This usually follows chronic duodenal ulcers but may be associated with gall-bladder disease, duodenal diverticulitis, new growths, etc.

In settling upon a plan of treatment, the radiologic evidence is of the utmost value. The one

absolute indication for surgical intervention is the presence of obstruction with retention. The question of operative procedures in cases showing no retention is open for discussion but does not fall within the scope of this paper.

In conclusion, I may state that the radiologic examination of the gastro-intestinal tract, when properly carried out and properly interpreted, furnishes information unobtainable by other procedures and that when considered with the findings by the other methods of examination is a most valuable aid in the diagnosis of gastric and duodenal ulcers.

MEDICAL MANAGEMENT OF DUODENAL ULCER.*

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Notwithstanding the inspiring revelations which come to us from the physiological laboratories, from the darkrooms of our radiologists and from the surgical clinics, is the interpretation of an ulcer's conduct often a very baffling thing. Long ago have I learned to correct, amplify, change or reverse my diagnosis, while managing its treatment; and of equal importance with the findings at the outset of our observation must we look upon the manifold therapeutic reactions as they emerge during a so-called ulcer-management. It should be intimately interwoven with differential diagnostic considerations. Where we have time allowance of from six weeks to six months to restore our patients to health and happiness, or to deliver them into the hands of the surgeon, should that span of time be devoted to constant observations of detail. We may have to shift our plan of treatment as we learn the characteristics of our cases. We must be prepared by the very success of our method of treatment to prove that our patient was not suffering of the ailment we were treating him for, having learned in the meanwhile that this is the one thing he is not afflicted with. It may be well to accentuate the changeable nature of our therapeutics in the face of the common impression that duodenal or pyloric ulcer treatment is a routine treatment par excellence, to be grouped under two or three headings, say bed-rest cure with initial starvation, following sliding feeding with increasing doses of milk, with or without additional cream, type Von Leube cure, or similar initial bed rest with rapidly increasing feeding of milk, eggs and meat, type Lenhartz; or ambulatory cure all together, with large amounts of cream and olive oil. But how are we going to determine which method is to succeed or where and when it will fail? This can only become manifest as we are taking care of the case. By rationally applying the underlying principles of these different methods at the appropriate moment, will we be more liable to get through with the case successfully than by adhering strictly to one method until the sweet or bitter end.

One of the first decisions to be made is whether we shall put our patient to bed or not, this depending upon people and circumstances; some of our patients cannot take to the bed, and older

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people, I find, do better by being allowed to move about in their own accustomed fashion. Imperatively do call for rest in bed, cases of bleeding, whether manifest or occult; frequent vomiting, pressure pain in the right upper quadrant, declared emaciation, pregnancy, active menstruation, diarrhea, fever and scant urine, with numerous hyaline casts and very ptotic individuals.

A bleeding case will do best by complete bed rest, complete functional rest of stomach, by either an opium and belladonna suppository, or morphine-atropine hypodermic, to be repeated as needed. It is rather rare to have a patient bleed fatally and our decision whether or not to operate has to be made with more good luck than wisdom. By all means does it seem questionable what good adrenalin with its secondary vaso-dilatation, ergot, with its bloodpressure raising effect; bismuth or iron chloride with its foreign body irritative effect will do. Normal horse-serum is being used as in hemophilia; but will it materially help in forming a large thrombus? Stockton used it in powdered form, called it coagulose. But it seems that absolute rest, typical opium rest, with an ice bag suspended over the motionless patient is the best we can do. And in earlier days in severe bleeding was venesection and tying of arms and legs to spare the peripheral blood resorted to.

More modern would be transfusions; or infusion of defibrinated blood of an acceptable group; and opening of the abdomen in search of the bleeding spot under local anesthesia or nitrous oxide and oxygen. A case, with hemoglobin below 20, which I saw in consultation with Dr. Millspaugh was so treated, and quickly and brilliantly restored to health.

In bleeding of minor degree would rectal drip with solution of calcium chloride seem appropriate. Gelatin I have never used and where hyperacidity is not too conspicuous a feature will rectal alimentation for a few days allow a complete pyloric rest. Profuse hemorrhage seems to reduce considerably the Hcl secretion—and many a case gets well fast after a severe bleeding. An objectionable feature of rectal feeding is the stimulation of Hcl secretion,—and of gastric motility as well. But those cases which show scant urine, emaciation, some degree of acetoneuria through previous vomiting and starvation will be benefited by rectal intake at intervals or by continuous drip of hypotonic solutions.

Where bleeding is not a feature, and still our patient is in bed, will constant hot poulticing as Von Leube recommended, or intermittent steaming for two hours at a time two or three times a day contribute to the relaxation of the pylorus, also reducing the congestion of the inflamed organ. The hot poultice furthermore should be used as a tool by an observant nurse. Whenever in the course of a day some heaviness or fullness is complained of, slight nausea or pain not relieved even by alkali, does it look as if retention is the cause, and a hot poultice applied at that instant will bring relief. An observant nurse, who by some inexplicable predilection has decided to really manage for us such cases can do very much to

further the success of our cure. An occasional hiccup, a little belching, some uneasiness of the patient will prompt her to look at the abdomen and note visible distension, to elicit a slight slush, and she will lengthen the interval of feeding, reduce the quantity of nourishment, or even stop all feeding for that day.

Precision, pedantic precision is necessary but not so much of dosage as of observation of indications. Some of our patients, time-long sufferers, have learned their lesson, and they are our best assistants, if we discuss their case with them methodically, and analyse their daily symptoms.

In the night will a Priessnitz bandage for those who go to sleep in it do great good. Night rest is of the greatest importance as a nerve restorer and because it indicates absence of harm done to the ulcer during that period. What is the harm? The disturbance of its rest, necessary to its healing. It seems obvious that the main damage is done by corrosive action of free Hcl. and the other by spastic contraction of the pylorus and disturbances of the ulcerbase. Both clinical and radiographic observations show that in duodenal ulcer hypermotility, increased peristalsis is the rule—which, however, does not run parallel with hyperacidity: neither does this mean, that total clearing of the stomach does take place in shorter time.

The opposite may be true, even without any stenosis by cicatrix, band or kink, even with a fully patulous pylorus will the process of evacuation gradually come to a standstill, with the result of a residue of increasing acid titre at two, three and four hours after meals. This being the time when the patient suffers pain, or when he in the middle of his sleep awakens with pyrosis. This is the time for following measures, hot applications; administration of magnesia, or soda, or both; the hypodermic of atropine, and, if need be, the introduction of the stomach tube. And this moment, this event has to be watched at its approach and be properly met. Who will do it? The attentive nurse or the observant patient. How little benefit do we derive from initial examination as to stomach motility and secretion, as disturbances of these functions will arise under varying conditions. One of the problems in ulcer management is the treatment of hyperchlorhydria and the consideration of all its causes. We all know, that a sufferer of duodenal ulcer, pure and simple, will often suffer greatly in the night, at 1, 2, 3 or 4 a. m., when he is alone with his misery, and nothing but pain and worry for companion. The next night perhaps after a pleasant evening of diversion will be passed in restoring sleep. Some morning hour of 10-11, especially when annoying business has been anticipated, will be torture; next day, after an identical breakfast, no trouble at all. A woman, in bed with her ulcer cure, approaches her menstruation; and for a day or two all our measures have to be altered. What does it indicate?

That nervous influences profoundly alter the secretion, from day to day, from one meal to another. And in as much the ulcer healing de-

mands protection against the corrosive action of free HCl, does it become part of our treatment to follow these variations by our single methods of correction. Any one has observed how patients will be able to digest fat at some time better than at other times; again, that some patients tolerate fats at all times, and others are invariably distressed by them. Now one leitmotif of ulcer management is liberal introduction of cream, unsalted butter, olive oil, almond oil, the rationale being that these fats decrease HCl secretion, and greatly increase the caloric value of our food. So then, have the cream on ice, have the oil in the house and use it, as indicated; and stop as soon as evident distress is the result. Still will one repeatedly read publications describing such methods of treatment, that untoward effects usually disappear after a few days of persistent continuation. Now this is wrong, once at the treatment should there be no distress or discomfort; because every time does it mean fresh injury to the ulcer, which is the same as a setback of so many hours or days. The relief, if not seen to be attendant, will be brought about in two ways: nausea and vomiting, or abdominal distress, bloating, diarrhea accompanied by headaches and biliousness. But this means an error in management and it calls for reduction in fat constituents; in reduction of quantity or lengthening of interval, in administration of magnesia. Magnesia has other advantages over soda, it binds more chlorine, it does not liberate carbon dioxide, which distends the stomach, and it does not form sodium chloride, which is reabsorbed, but magnesium-chloride, which leaves the body in the feces. One of the principles of ulcer management is the reduction of chlorine constituents, so that in hyperchlorhydria, from whatever cause, salt or salted food should be withdrawn or greatly diminished. The best and most effective way of removing the corroding HCl, especially towards night during the first week or so of the treatment, when acidity still runs high, is the use of the stomach tube. There is no harm whatever connected with its introduction if properly performed in the case under discussion: duodenal or pyloric ulcer.

It is different with small curvature ulcer. In the clinic practice of Sippy, this most inspiring and brilliant teacher, is it made a rule in ulcer or hyperchlorhydria management, to stop feeding at about 4 p. m. the tube then passes at about seven for the double purpose of removing the acid gastric contents and determining its titre and degree of retention and again, on indication of slight distress or on presence of slushing, another aspiration is done at about ten. The stomach is now left at rest for all the night. The relief is complete and soon permanent. In the management of such cases of retention which for some reason or another do not reach the surgeon, do I teach my patients to use the tube at night before going to bed. I would feel inclined to divide all ulcer treatment into two periods: the treatment during function of digestion, the treatment during the period of rest, which is the night, and in some cases lasts from 24 to 72 hours at the onset of our

cure. During digestion is it a matter of food selection as to acid binding quality (casein and albumin) as to acid depressing quality (cream, oils) as to quantity dependent upon degree of spasticity amount of inflammatory swelling: as to interval. During functional rest the night and early morning have the ideal time for local application. Large doses of bismuth subcarbonate or of milk of bismuth may be given in the night—either after lavage or at bedtime, the last feeding taking place at about five or six being small in bulk. With it may be given one or more ounces of olive oil—or even (when olive oil is not so well tolerated, and still the laxative lubricating effect on the bowels is desired liquid paraffine) again is the morning hour, anywhere from 4 a. m. on, the time for the administration of Karlsbad sprudel salts in warm water.

At the outset of any ulcer cure it is well to administer calomel or blue mass or podophyllin followed by a saline; and during the further management is a rigid attention to state of liver and bowel of the utmost importance. Of late years have I become somewhat prejudiced against the use of large amounts of flesh food in the hyperchlorhydria concomitant with ulcer. But a freer use of well cooked rice or other cereals has proven of greater assistance.

There are methods of more recent perfection, which in the hands of some have given excellent results. Especially do I mean Einhorn's duodenal feeding; only lately have I started their use, so cannot express any opinion. While East did I see some very good results, but also many complete failures, even in the hands of competent men.

I am well aware that in these fifteen minutes I cannot do justice to the vast material by which one is surrounded, who sees many cases of this type. I could have spoken of the atrophine treatment to which I am very partial: of the use of orthoform and anesthesin; of the use of silver nitrate, either in form of lavage 1 to 5000 twice a week or in solution on Boas recommendation, before meals, which drug has to be handled with great care and discrimination; of the use of peroxide of hydrogen, which for the time being reduces hyperchlorhydria. Nor was there time to mention the management of arterio-sclerosis, which Ophüls has shown to be so often at the bottom of ulcer.

But I have chosen to express my conviction that there is no one special method of treating ulcer of the duodenum, even not a method of methods, as Dr. Weinstein formulates, but that it should be our aim to cover the raw spot, to reduce the inflammation, to relax the spasticity, to diminish the hyperchlorhydria, to improve the general health. I should have spoken of exercise, of better living, wholesome living, of abandoning coffee, alcohol and tobacco and of the cheerful attitude which is justifiable in the face of the promise on honest basis of observation, that ulcer of the duodenum if not complicated and caused by other surgical lesions and if not complicated by adhesions or stenosis, is curable, medically, dietetically, hygienically in a large percentage of cases.

GASTRODUODENAL ULCER; SYMPTOMATOLOGY AND DIAGNOSIS.*

By EMIL SCHMOLL, M. D., San Francisco.

The therapeutic results of surgical intervention in affections of the stomach, the frequent opportunity we now have to control our clinical findings autopsically, have led to a complete revision of even recent teachings on gastric and duodenal ulcerations. The French clinician Soupault was the first one to consider pain occurring three or four hours after feeding combined with the periodicity of symptoms as characteristic for ulceration involving the pylorus; in 23 cases operated on by Hartman he was able to prove his contention: In all cases ulcer either involving the pylorus or located just above or below the pylorus was found.

It remained, however, for Moynihan to popularize this view based on the overwhelming evidence of a great many cases treated by surgical means. According to his enormous experience the diagnosis should be based on the history of the case. Hunger-pain and periodicity which, if typical, he considers sufficient proof even in the absence of physical symptoms. The anamnesis is everything, the physical examination nothing, as he expresses it.

The most characteristic symptom of duodenal ulceration is pain which appears when the patient begins to feel hungry in a definite space of time, which varies according to the character and the consistency of the food. Usually it appears at 11 a. m., 4 p. m. and if sufficiently severe awakens the patient at about 2 a. m. Most patients know that their pain is almost immediately relieved by eating; a glass of milk or some crackers taken at the time of the paroxysm insure a few hours' relief. Moynihan characterized these complaints as "hunger pain," a term which has been generally accepted.

The second symptom of duodenal ulcer is furnished by the periodicity of the attack. At the beginning of the affection periods of pain occur separated by months and even years of complete relief, during which the patient believes himself completely relieved and partakes with impunity of all varieties of food. As the disease progresses the "interval periods" become shorter and shorter, until finally the patient is in almost uninterrupted pain.

Ten years have elapsed since this symptom complex has made the diagnosis of duodenal ulcer a comparatively easy one. In a great many cases the accuracy of Moynihan's contention has been verified and the diagnosed ulceration been found autopsically. In other cases, however, in spite of characteristic history no ulceration could be discovered, while in other cases the presence of an ulceration failed to reveal itself by any symptoms or caused phenomena which did not possess any of the characteristics emphasized by Moynihan.

In the discussion we will first try to analyze the symptomatology of ulceration at or immediately above or below the pylorus. It is with full intention that I have failed to observe the usual division

into duodenal and gastric ulceration for the following reasons: In the cases I observed personally I have failed to see any clinical difference between the symptoms produced by gastric, pyloric and duodenal ulcerations, as long as they were located immediately near the pylorus and interfered with its normal action, an opinion in which I concur with Soupault and Kemp. On the other hand the distinction between gastric and duodenal ulceration is usually drawn according to the position of the pyloric vein. Anatomical investigation done by Ferrari shows, however, that in only four out of 16 cases the pyloric vein was located at the pylorus, while in the other 12 cases there was a difference of 1.5 to 4 cm. on either side of the pylorus.

The following conclusions are drawn from my own material: Out of about 160 cases in the last six years, only 46 could be utilized for statistical purposes, having been observed by me clinically for periods of from six months to several years. In the other cases the diagnosis could not be considered as sufficiently founded either because they did not present a sufficiently complete symptomatology or because they were seen only once or twice in consultation.

The periodical occurrence of symptoms was observed in 43 out of 46 cases, no matter whether they were located at the pylorus or in the body of the stomach, this being contrary to the opinion of Moynihan, who claims that the periodicity is one of the most important characteristics of duodenal ulceration. I have seen the alternation of painful period with complete absence of symptoms in two cases of ulceration of the lesser curvature, and in one case in which a scar was found in the fundus along the greater curvature.

Periodicity of symptoms can manifest itself in other pathological conditions of the stomach, especially in cases of atony with general enteroptosis. While these cases are easily distinguished from ulceration a differential diagnosis of chronic appendicitis with periodical symptoms may be surrounded by a great many difficulties. Under these conditions appendicitis produces the symptoms of hyperacidity which during the attacks combines itself with pylorospasm. If the vomitus is mixed with blood as I have seen it in two cases the differential diagnosis becomes almost impossible. However, in both these cases complete recovery followed the removal of the appendix.

Hunger-pain was present in 41 cases out of 46. Twice it was missed in duodenal ulceration operated on account of obstructive symptoms. One was a case of several years' standing, and in the other one the disease revealed itself outside of some vague dyspeptic symptoms of short duration by a big hemorrhage through the bowels and tonic contractions of the antrum, which could be seen on inspection. Operation revealed ulceration of the duodenum adjoining the pylorus.

Hunger-pain was present in two cases of gastric hyperacidity without ulceration and very little reliance can be placed on it unless it is combined with a number of other characteristic signs.

Hæmatemesis or passing of blood through the

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stools is the most frequent symptom of ulceration. I hesitate to make the diagnosis of ulceration without the history or finding of blood in the excretions. Out of 46 cases it was found in 36; amongst the negative cases are several in which the observation was not sufficiently extensive, as operation had to be hurried.

The differentiation of gastric and duodenal ulceration has often been based on the way in which the blood was excreted. Exclusively gastric hemorrhage was said to correspond to gastric origin, blood in the stools to a duodenal source. My evidence does not corroborate this opinion. Several years ago a case was observed in which two big intestinal hemorrhages took place, while on repeated examinations the stomach contents were free from blood. The diagnosis of gastric ulceration was nevertheless made, on account of the disappearance of pain on change of position, a symptom which if constant I consider pathognomic of gastric ulceration.

Bleeding from the stomach and especially hæmatemesis are by no means characteristic of ulceration. For some time Moynihan pointed out a group of cases, in which the lesion at the operation is found at the appendix and not in the stomach. Outside of small hemorrhages which follow very frequently the introduction of the stomach tube, I have seen two cases of repeated hemorrhages in which operation failed to show any lesion.

One case seen repeatedly in consultation was very typical. A lady 37 years of age had a number of hemorrhages within the last six years combined with symptoms of hyperacidity. She was first seen after several hemorrhages occurring within three days had reduced her hemoglobin to 18%. Under Lenhart treatment the patient recovered; six months afterwards laparotomy failed to show any lesion; a gastroenterostomy was performed without any benefit to the patient; the symptoms remained unchanged and the hemorrhages recurred.

Hale White has described a number of these cases and considered them as due to vicarious menstruation, an opinion which I cannot share.

Hemorrhage due to high blood pressure can easily be differentiated from ulceration by the absence of any gastric symptoms, or any radiographic signs and the positive findings in the cardiorenal system.

Hemorrhage due to Banti's disease or cirrhotic changes in the liver should be recognized by the physical signs, revealed by a careful examination of the liver, spleen and blood.

The hemorrhage very seldom endangers the life of the patient; amongst all the cases I have seen only one died from this complication. The case, which is not included in my list, was seen in the country far away from a place where surgical intervention could be carried out. In this case the hemorrhage occurred in an ulcer which had led to an almost complete obstruction of the pylorus. I am quite sure that death was due to this complication as the stomach could not be set at complete rest. In this case an early gastroenterostomy would have saved the patient's life.

Hypersecretion is one of the most important signs of ulceration, not the hyperacidity as we read in so many text books. It may be diagnosed, if we obtain after an Ewald's breakfast more than 120 cc. of the fluid with an acidity above 80. While seen in a great many cases of gastric ulceration its occurrence can be noted in almost every case of pyloric ulceration; in a series of cases published by Kemp it occurred in 95% of the pyloric cases and only 23% of the gastric ulcerations.

Continuous hypersecretion formerly called Reichmann's disease is undoubtedly in the great majority of cases an indication of a pyloric ulceration. All the cases I have seen were due to an ulceration, although a number of cases are reported in which no lesion could be detected around the pylorus.

Inability of the stomach to empty itself within six hours or motor insufficiency of the first degree is one of the most constant symptoms of pyloric ulcerations. While occasionally met with in gastric ulcer it is almost a constant sign in pyloric lesions. While in my series of cases strict attention to this point was only paid within the last year, I have been able to demonstrate its presence in not less than 18 cases. The combination of motor insufficiency with hypersecretion is a very frequent combination in cases of pyloric ulceration and should be considered as a very definite and important step in reaching a diagnosis.

In a number of pyloric ulcerations we can observe attacks, during which every particle of food is vomited. With the food large amounts of fluid are vomited, which in a great majority of cases can be identified as pure stomach juice. If feeding is completely stopped the vomiting continues for a number of days, during which pure gastric juice is vomited in large amounts. These attacks of pylorospasm occur in the great majority of pyloric ulcerations; a typical history of vomiting large amounts of clear fluid during the night or early in the morning is one of the most constant features of a well taken anamnesis. Pylorospasm interferes very frequently with the course of the treatment; if in cases complaining of pressure and distress during the course of the treatment one introduces a stomach tube, large amounts of clear fluid intermixed with food taken on the day previous may be obtained.

Pylorospasm is very often detected by the X-ray examination of the patient; delay in emptying of the stomach from six to 24 hours notwithstanding a strong peristalsis are frequently met with. Pylorospasm is one of the most frequent symptoms of pyloric ulceration, but by no means pathognomic. It is occasionally met with in gastric ulceration, frequently in cholelithiasis. The most pronounced case was seen in chronic appendicitis in which the vomiting of gastric juice continued for four days notwithstanding exclusive rectal feeding. Operation revealed a normal stomach, and an old obliterated appendix. Appendectomy led to complete recovery.

In a great many cases the retraction of the ulcer leads to chronic obstruction characterized by

constant retention of food over night and visible peristalsis. It occurred three times in my cases, all three were operated on, two with excellent results. One developed shortly afterwards a carcinoma on his old ulceration and died six months after his gastroenterostomy. It is in these cases that surgery obtains excellent results, from which it claims the right to deal with ulceration by surgical means, but overlooks the point that only obstruction and not the ulceration is dealt with.

Very little reliance can be placed on pressure points. Wrong localizations are frequently made and easily understood, if one accepts Head-Mackenzie's explanation of referred pain. Too much reliance on this point can lead to grave diagnostic errors as in the following case:

Mr. P., while traveling on a train on the first of February was seized with a gastric hemorrhage; he came under my care after a few days, and was put on the Lenhartz treatment. He failed to improve; a pressure point to the right of the umbilicus became more and more marked; spontaneous pain localized at this place and finally the abdominal wall became edematous. An operation performed at this time followed shortly afterwards by a post-mortem (the patient having died of an acute dilatation) showed a completely cicatrized ulceration of the duodenum.

The complications of ulcers can easily be diagnosed as long as the presence of an ulcerative process is established.

I have had two cases of acute perforation of a duodenal ulcer operated on. In both cases the diagnosis was easy as the combination of a typical history with the symptoms of a perforative peritonitis pointed the way. One of the patients recovered, the other one, a man of 73 years, died of heart failure on the third day.

Slow perforation of an ulcer was seen in three cases; one, in which the perforation of a pyloric ulcer had led to formation of an air-containing subphrenic abscess, died a few hours after he had been seen; in another case in which the ulcer had not produced any typical symptom, fever persisted for several weeks until an acute perforation forced surgical treatment on the case; he died about 10 days after the intervention, of sepsis. A third case, in which the perforation had probably taken place into the pancreas, was treated conservatively and has been free from symptoms for the last two years.

A rare complication was seen in one case; a woman of 55 years, who had presented the symptoms of a gastric ulcer, was suddenly taken with a chill, fever, leukocytosis and tenderness over the epigastrium persisting for several days. At operation a phlegmon of the stomach was found and a resection of the stomach attempted, but the sutures did not hold in the inflamed tissue, the gastric juice escaped into the peritoneal cavity, digested one of the large blood vessels and the patient finally died of hemorrhage.

The combination of ulcer duodeni with tetany was seen in one case; at the time of the observation she had symptoms of pylorospasm combined with typical tetanic seizures. Operation was advised and will be carried out very shortly.

The transformation of an ulcer into a carcinoma was observed three times. In one case a typical carcinoma was found to have originated from an old ulcer, in two other cases gastroenterostomy had been performed for two typical ulcer tumors at the pylorus; glands resected at the operation failed to show any sign of malignancy. In both cases carcinoma began to develop some months afterwards and both succumbed very shortly.

From my observation I am inclined to believe that the dangers of a malignant degeneration of an ulcer have been very much overrated.

The differentiation of ulcer from carcinoma of the stomach does not present very great difficulties in the vast majority of cases, but under certain conditions, especially if an ulcer-tumor can be palpated, the diagnosis meets with unsurmountable difficulties. Under these conditions I rely most on the almost constant presence of occult blood in carcinoma, whilst in an ulcer it occurs only periodically. The constant appearance of a gramm-positive flora in the stools is strong evidence in favor of a carcinoma, but in most of the cases the differentiation has to be carried out by means of an X-ray examination.

Looking over the clinical picture of ulceration one cannot help being impressed by the similarity of certain phases with the symptom-complex presented by other inflammatory lesions of the abdomen. Very frequently such a focus causes symptoms entirely localized in the stomach with a perfect mimicry of ulceration. Hyperacidity, hunger-pain, pylorospasm and even hemorrhage are frequently the expression of an inflamed appendix or an infected gall-bladder. Removal of the focus of infection is followed by complete recovery.

The similarity of symptoms in my opinion points to a similar pathology. There cannot be any question that in such attacks the foundation for an ulceration is laid. We have come to look upon ulcer of the stomach as a secondary disease (Sweite Kraukbeit, as Roessle expresses it). An irritation set up somewhere, most frequently in the appendix and in the gall ducts, leads to a localized spasm in the stomach wall. This spasm is brought on by the irritation of the autonomic nervous system; as a matter of fact almost every case of ulceration presents the stigmata of a hypersensitive vegetative nervous system as shown by v. Bergmann and his pupils. This spasm, frequently seen during the X-ray examination, leads to local ischemia by the compression of the blood vessels. The anemic area in the mucosa is attacked by the stomach juice and digested; in this way an ulceration takes its origin and finally becomes a chronic ulcer.

This theory makes us understand why the lesions of ulcer are so hard to heal. When after resection of an ulcer another defect originates in the same locality, when after intermissions of six to eight years without any symptom the signs of ulcer return, we can be sure that the same cause has led to a new localization of the old affection.

It is clear that neither surgical nor medical treatment can be fully successful, as long as they treat only the result and not the cause of the disease. In which way medicine and surgery is going to make use of the new facts in the pathogenesis of ulceration, we hope to hear in the following papers.

THREE CASES WITH RELAXED PELVIC SUPPORTS.*

By REXWALD BROWN, M. D., Santa Barbara.

Case I. Mrs. B., age 64. Has had two children with severe lacerations each time. Periods ceased at 50. During the past three years, and particularly during the last eight months, her existence has been miserable. A gradually increasing descensus of the uterus and rectum has practically incapacitated her. Walking has been almost impossible. Examination found the uterus entirely below the vulvar orifice and five inches of the rectum greatly congested, protruding through the anus. The following operation was done: Through a rectus incision the uterus and rectum were lifted into the abdomen and placed parallel to each other. By a double row of interrupted sutures the rectum was firmly sewed to the posterior wall of the uterus. The uterus was then sewed into the peritoneum and muscles of the abdominal wall. The patient's condition at the conclusion of these procedures not being good, further work as had been intended, approximation of the levator ani muscles was not done. Two years after the operation the patient reported that there had been no return of the rectal prolapse, but that the uterus was again appearing at the vulva. She stated she was able to be about and engage in considerable housework.

Cases of prolapse of the rectum are deplorable—with prolapse of the uterus doubly so. They follow a complete loss of tone in all the pelvic supporting structures, induced primarily, as a rule, by a lacerated perineum.

A repair of the perineum alone will not remedy the condition. The cases are not frequent, and a technic must be evolved to meet each case. In the above the procedures outlined served most satisfactorily and could the perineum have been repaired the result would have been well nigh perfect, as the perineum would have prevented materially the continuous heavy drag of the uterus on the abdominal wall.

Case II. Mrs. S., age 51. Referred by Dr. L. E. Heiges of Lompoc. A sister died of carcinoma of breast. Patient's periods began at 13 and were regular up to 2 years ago. Each period lasted 6 to 7 days. Patient had two children. At age of 49 periods began to increase in length of flow, each period lasting 10 to 12 days. Ten months previous to date of this history had, between periods, a sudden severe vaginal hemorrhage. For three months following there was a daily painless bloody discharge. Flow then ceased for two weeks, recommenced and has been continuous since. Three months ago the flow was excessive and patient lost rapidly in strength and weight. For past half year each time bowels have moved a large mass has protruded from vagina and flow has increased. Examination revealed a prolapsus uteri of 3rd degree with a fibroid size of large orange protruding from cervix. There was no evidence of carcinomatous degeneration. The perineum was entirely relaxed. At operation the fibroid was removed through the vagina, the pedicle being detached from the internal os. A Tait perineorrhaphy was done to restore somewhat the perineal floor and narrow the vagina. The abdomen was then opened and the Murphy operation for proclitidia uteri performed. Convalescence was uncomplicated and now eight months later the patient is in excellent health with no return of the prolapsus.

In this case it was readily seen that a perineor-

rhapsy would not correct the descensus of the uterus. There was also a descensus of the bladder. As it has been demonstrated so often that hysterectomies and abdominal fixations of the uterus have not achieved entirely satisfactory results in prolapsus cases the success of Dr. Murphy's technic in these conditions suggested its use.

The object of the operation is to lift up the whole pelvic floor and hold it permanently. In brief the steps are: the uterus is brought up until the cervicocorporeal portion is in view—the round and broad ligaments are clamped down to the junction and cut free from the uterus; the stumps are ligated and the lips sewed to cervicocorporeal junction—body of uterus is then free above the recti muscles: The peritoneum is closed about the junction—the uterus is split in the long axis through the middle to the junction and opened out laterally: the mucosa is then entirely cut away—the two lateral parts of muscularis are then securely sewed to the aponeurosis of the recti muscles. It is impossible for the uterus to return to the abdomen.

Case III. Miss W., age 38. Mother died of carcinoma of stomach. Patient's periods have always been regular, each of five days' duration and painless. There has been no increase in flow in recent months. Patient complains of falling of the womb which has been present for several years. She states she is excessively nervous and has most severe and depressing headaches which are worse just before periods. Examination found the pelvis blocked with a large nodular mass, the cervix being pushed down almost to vulva. A supravaginal hysterectomy was done, a very large uterus containing multiple intramural fibroids being removed. The round ligaments which were long and thin were carefully sutured over and into the cervical stump.

This case has been a discouraging one to patient and doctor. Although the operation was performed for an entirely different condition than a prolapsus, prolapsus conditions were present, i. e., relaxation of round and broad ligaments. This case, as will presently be noted, exemplifies, as one instance, the uselessness of supravaginal amputation of the uterus as a radical cure for prolapsus uteri of advanced degree, even though the perineum be repaired conjointly. In this case the perineum was intact.

When the round and broad ligaments have become stretched beyond their power to recover their normal tone, it is asking too much to expect them to support the bladder and rectum, though they are freed of the drag of the uterus.

To continue with the history: Three months after the operation patient returned complaining that during past two weeks she had noticed lump in vagina, which annoys her when walking. Examination revealed cervix presenting at vulva and a complete relaxation of vagina vault. Bladder was in descensus. The abdomen was again opened, the round ligaments, practically unrecognizable, overlapped and sutured into cervix, the broad ligaments plicated over the cervix and the cervix sewed into the muscles of the abdominal wall by heavy catgut. Four months later the patient's condition was as bad as before operation. One year after the second operation I operated upon her again for an acute intestinal strangulation in the upper ileum due to adhesions of undiscovered cause. The pelvis was free of adhesions. The prolapsed cervix, greatly atrophied, was once more fixed into the abdominal wall with heavy silk. It is now nine months since the last operation and the vaginal vault with the little cervical knob at the inverted apex is again coming down.

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NOVOCAIN POISONING.

By R. B. GIFFEN, D. D. S., and F. F. GUNDRUM, M. D., Sacramento.

For some thirty or forty years after the introduction of general anesthesia local anesthetics were unknown to the medical and dental professions. In about 1875, however, the powerful effect of cocaine in producing analgesia after application to a special portion of the body became known and this drug began to be widely used for minor surgical and for dental operations, where general anesthesia was unnecessary or inadvisable. It was soon found, however, that this drug was far from ideal because of the not infrequent instances of alarming poisoning and occasional deaths¹ following its use. Pharmacologists therefore exerted themselves to produce some modification of or substitute for cocaine which would have the anesthetic properties without its toxicity. A host of such local anesthetics have appeared upon the field: stovain, eucain, beta-eucain, alpin, novocain, quinin and urea hydrochlorid and others.

"Novocain"² (1—para, amino, benzoyl; 2—diethyl, amino, ethane, hydrochlorid) manufactured by Farbwerke, vorm. Meister, Lucius and Bruening, Höchst A. M. Germany, has been one of the most widely used, particularly by the dental profession. The popularity of this drug has depended upon its ready solubility in water (equal weights); its stability to heat (boiling); its activity as a local anesthetic; and its relatively low toxicity. The action of novocain in producing anesthesia is apt to be a little short lived. To overcome this various investigators have combined with novocain some other drug. It was early found that the addition of a few drops of 1/1000 adrenalin solution increased the duration of the analgesia, presumably through the contraction of the arterioles of the local field. Petrow³ showed that the toxicity of novocain for rabbits was markedly decreased by this addition of adrenalin solutions. Löwen⁴ succeeded in heightening the activity of novocain by adding to its solution sodium chlorid and sodium bicarbonate. Hoffman and Kochman⁵ by adding potassium sulphate to the solution for injection increase the dilution without diminishing the anesthetic activity.

There is practical unanimity of opinion concerning the activity of novocain as a local anesthetic among the surgeons and dental operators. Schmidt,⁶ Reithmüller,⁷ Danielson,⁸ Chaput,⁹ Gross,¹⁰ Part¹¹ and Heinke and Lowen¹² all attest the effectiveness of novocain in producing satisfactory local anesthesia when used under a wide variety of circumstances in animal experimentation, minor surgery, dental surgery and intraspinal injection for major surgery. The toxicity of this drug has been found to be uniformly very low when compared to that of cocaine. Upon animals Schley¹³ found that 50 min. of a 4% solution did not kill a 515 gram guinea pig. Biberfeld¹⁴ found 0.25 gm. per kg. of dog was not fatal. Chaput¹⁵ used as high as 0.7 gm. clinically without toxic effect. Liebl¹⁶ experimenting upon himself used 0.4 gm. without dangerous symptoms.

Other authors report very considerable amounts injected hypodermically. Struthers¹⁷ 6 dr. of 1% solution; Prinz¹⁸ "3 gr."; Braun¹⁹ 0.25 gm. without appreciable toxic effect. There have, however, been occasional instances of symptoms occurring after injection of novocain. Some of these have been attributed to an "adrenalin effect" and others to hysteria brought on by the stimulation of the novocain injection. Fischer²⁰ after citing three instances of hysterical outbreak expresses his opinion "That for cases which are termed intoxications from novocain with great probability other causes, such as hysteria, are to be held responsible." Gooding and Etheridge,²² after a careful review of the circumstances surrounding the patient described in their article, conclude that the phenomena described were hysterical and not really toxic by novocain.

Occasional instances of what seem to be true novocain intoxication do occur. Fischer²¹ in a later publication describes a condition of relative unconsciousness following an injection of 3 cc. of a 1.5% novocain solution with three drops of a synthetic suprarenin 1/1000 solution. "Patient was in a hypnotic dream; followed instructions, rinsed, opened and closed mouth without being conscious of what she was doing. Recovered consciousness 20 minutes after injection upon the extraction of two roots. Did not know what had happened. No other toxic phenomena present." A second instance of poisoning cited by the same author, followed the injection of 2 cc. of novocain solution of unknown strength. The patient, a woman, had just recovered from influenza. One minute after injection, difficult respiration, cyanosis, dilated pupils and coma. Respiration ceased, artificial respiration for a few minutes brought about recovery. This author, although describing the two instances of intoxication described above, concludes as follows: "Barring a few disagreeable accidents, no serious harm to the organism has ever been reported after the application of the above specified novocain-suprarenin solution, i. e., novocain 1.5, sodium chlorid 0.92, thymol 0.02, aqua 100." Surely an optimistic conclusion after the case recited just above. Marshall²³ reports an instance of "unpleasant symptoms after novocain," the victim being himself. He received three injections at one sitting amounting altogether to 2 gr. of novocain with 1/250 gr. of adrenalin. No unpleasant symptoms occurred until several hours later. The patient noticed malaise upon going to bed. The following morning while walking, the patient was seized by a feeling of constriction in the region of the heart, dyspnea with elevation of pulse rate necessitating rest for several minutes. Jassenetsky²⁴ and Kredel²⁵ report cases of temporary blindness following injections of 8 to 10 cc. of 1/2% novocain solution into the orbit, while doing minor surgery in that neighborhood. Kredel thinks that the blindness was due to an arterial ischemia and blames the adrenalin for the mishap. Both cases cleared up, the latter within three or four hours, the former upon the following day.

Our own interest in possible sequels to injec-

tion of novocain dates from August, 1912, when the following came under our observation:

Mrs. A., American, aet 25. Family history, negative for nervous diseases. Personal history: No serious diseases, no nervous affections, no recent severe mental or physical strain; bodily functions apparently all normal.

Present illness: Upon August 7, 1912, patient appeared at the office to have some dental work done upon the lower incisors. The whole group of incisors seemed especially tender and to relieve pain during excavation an injection of novocain, gr. 1/3 with adrenalin (synthetic) gr. 1/200, was given into the peri-dental membrane around the lateral incisor and cuspid. The patient felt a "quickenings of the heart as though frightened" within a few minutes after receiving the injection, with some numbness of the mouth and limbs. The heart symptoms rapidly disappeared and the patient went through a sitting of an hour and a half without any pain at all from the excavation and preparation of the cavities. Felt slight numbness of the mouth and limbs on following day, but said nothing about these sensations when she came back for a second sitting. The teeth were considerably less sensitive than upon the previous day, but as there was still some pain, a hypodermic containing a similar dose as that given upon the previous day was prepared. The injection was begun in the same area. After about one-fourth of the solution had been injected (i. e., novocain gr. 1/12, adrenalin gr. 1/800) the patient complained of weakness, palpitation and "as though frightened." The needle was at once withdrawn. Within a few minutes, however, patient felt markedly drowsy, but was easily roused, unable to move or rise from dental chair. At this time she was fully conscious, not frightened; said "felt silly about the affair." Pulse rate was 90, volume very good; blood pressure 140 systolic. The heart dullness was not increased, sounds clear. After a few minutes' rest and a small dose of strychnia, we were able to take her home in a machine. On the following day she presented the following:

Her sleep had been much broken, no pain, merely restlessness. General physical examination revealed nothing remarkable. There was marked dullness of perception of touch, temperature and pain over feet, legs, thighs and hands and forearms, less marked upon trunk. Motor responses (voluntary) less affected than sensory, but some weakness in legs and arms. All the teeth of the left lower jaw were quite anesthetic. Muscle sense seems least disturbed. This condition persisted, gradually becoming less severe, for five days, the nocturnal restlessness being the most distressing. Upon beginning to walk after a few days in bed, there was a slight dragging of the left foot. August 16th, one week after the second injection, all objective evidence of the trouble had disappeared, although she still complained of a weak feeling in the left foot.

The account of one further instance of poisoning was kindly sent us by R. R. Sibley, D. D. S. of San Mateo, whose account, together with that of W. C. Baker, M. D. who saw this patient with him, is given herewith:

Dr. Sibley says: "I injected between the upper right central and lateral incisors about 1/6 gr. novocain for the preparation of the cavity in the central (incisor). Patient seemed normal until I was half through inserting the filling, when I noticed she was drowsy, but would rouse when spoken to. After the filling was completed, which took about one hour and a half in all, the patient walked to the dressing-room to prepare herself for leaving. She sat down, placing her head on her arm on the table. I roused her and gave her a drink of whisky. This had no effect, so I telephoned for the physician after placing the patient

in a reclining position. Patient was in my office from 1:30 to 8 p. m., and was pretty 'groggy' when she left."

Dr. Baker's note was as follows: "Miss W., a young woman about 20, medium size, complexion dark and good color. I find her almost unconscious, nervous and irritable; handling her will bring on slight shiver, almost a convulsion. Pupils equal, dilated, reaction good; pulse weak, irregular, small and very slow at times. Slow sighing respiration when aroused, a feeling of tightness through the chest. Marked nervous irritability; consciousness slowly returned after hypo of strychnine and nitro-glycerine. Full dose of aromatic spirits of ammonia seemed to improve the condition very much. The toxic condition is very similar to cocaine in overdose and yielded to the antidotes for it."

Toxic manifestations from novocain injections seem to be quite rare. A rather extensive review of the dental and medical literature for the past few years brings to light scarcely half a dozen instances. Of course, many minor evidences of poisoning may escape notice and some more serious ones fail to be recorded. Upon inquiry among a rather large dental acquaintance no one had ever seen any alarming symptoms except occasionally a little "palpitation of the heart" "due to the adrenalin." That occasional poisoning does occur seems certain. The very slow return to normal in our own case seemed to us a most interesting phenomenon, not usually recorded as being a symptom of intoxication with cocain or its related anesthetics.

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THE FUNCTION OF THE GENERAL PRACTITIONER IN RELATION TO THE STUDY AND PREVENTION OF NERVOUS AND MENTAL DISEASE.*

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This being pre-eminently the age of the prevention of evil, physical, mental, moral, and social, we are all concerned in the campaign with an ever deepening sense of responsibility, as our knowledge of the causes of disease increases.

There is no department of human activity which the physician, if he be true to his calling, can conscientiously ignore, for his work deals with man as a whole and the reactions of environment in all its phases upon man. But in our zeal to do something great, to take part in some big movement, to prevent disease in an wholesale manner—we are quite apt to overlook details in the individual case—because of our concern for society as a whole. But society is made up of individuals; like the human body, society is an organism and if one member suffers, all, or at least some, other members suffer with it.

In these days of specialism and specialists, when medical men seem more interested in the "case" from a purely scientific viewpoint than in the patient as an organism there is apt to be a great deal too much shifting of responsibility by one specialist to the shoulders of another and too much disregard of anything outside one's particular field of endeavor; and consequently many important conditions are overlooked and uncorrelated, conditions which have much to do with the future of our patient from more than one point of view.

Now what are the most important individual problems confronting the general practitioner which have a direct bearing upon the prevention of future disease of the central nervous system, both organic and functional? Naturally the answer is, they are those seen in connection with infancy and childhood and in connection with the critical period of adolescence, and it is the family doctor who meets

them first and most often. He, alone, has the advantage of prolonged association, for he may follow the patient from birth through a long life to the grave, if given the chance.

What function has the general practitioner you may ask, in preventing neuropathic or psychopathic disorder? Are not such diseases due chiefly to hereditary factors and therefore problems to be solved by the eugenist? And again, what can the practical physician do about it and why should he bother himself since he is concerned chiefly with the individual's bodily ills? While it is true that in the majority of individuals who, sooner or later, fall victims to nervous or psychic disease, there is a defect in the germ plasm from which they have developed we must not forget that it is a latent defect and that the circumstances which bring this latent defect into activity are largely controllable—if recognized early. The problem of paramount importance is that of recognizing early the latent defect, of determining early the type of personality that we are dealing with and its capacity for adapting itself to its environment, and of shaping both its education and environment, physical and psychological, to meet its capacity.

To do this the family doctor must have as great an interest in the psychology of his little patient as in the physical condition. The day has passed when the general practitioner could be excused from interesting himself in psychological matters. Their importance in relation to physical and mental welfare of both children and adults is now all too apparent. Such an interest should be part of the day's work of the doctor as well as a very important part of the education of the medical student.

Gentlemen, it is time to call a halt on the bugbear of heredity, especially in relation to functional nervous and mental disorders (I am not now considering imbecility or feeble mindedness) though even here extrinsic factors may play the only part in causation. A bad heredity is bad enough to be sure, but nature, sooner or later, takes care of it and in a way beneficial to the race. Moreover, it is too complex a subject for even the expert eugenist to lay down absolute formulae about or to make laws about marriage which will inevitably, work well. Furthermore, when the hereditary aspect of disease looms large in our minds we become incurable pessimists and lose sight of the early post-natal causes, the influences of traumatism during birth, of mal-nutrition in utero and early infancy, and the morbid impressions due to faulty environment and education, especially the education or lack of it given in the home from birth to adolescence as they affect the predisposition to nervous and mental disease. There are always causes for nervous or mental breakdown other than hereditary, and, indeed, more often than not, no hereditary taint can be demonstrated. Many things are said to be inherited which would be more correctly termed "early acquired" or "congenital," for example—congenital syphilis also is responsible for numerous cases of feeble-mindedness, epilepsy and even paresis as

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early as six years of age, to say nothing of its effect upon general development. It may be prevented by treatment of the suspected mother during early months of pregnancy, and its effects may surely be forestalled by proper treatment of the infant until we *know* that it is cured. I wonder how often this disease is overlooked by the general practitioner and how thoroughly followed up the treatment is. We have now a reliable test in the Wassermann reaction and in salvarsan, a surer remedy than ever we have had, but often we do not avail ourselves of the former and give the latter in a desultory half-hearted manner. Heroic treatment of congenital syphilis and of acquired syphilis and eternal vigilance to be positive that we have cured it is the only treatment worthy of the name. Syphilis is responsible for about 25% of the mental cases admitted to the State Hospitals of New York State and I dare say that the same would hold true of all other states. Many of these cases are due to acquired syphilis in youth and to prevent these we need to emphasize the importance of education in matters of sexual hygiene to the young men and women of our high schools and colleges. Two other very important factors in causing a predisposition to nervous diseases and the neuropathic constitution are malnutrition during early infancy and defects of development of the glands of internal secretion, especially of the thyroid and pituitary. As yet, we know but little about these latter and the metabolic conditions dependent upon them but they offer a most interesting problem for research, not only in the laboratory but as much or more so, in clinical practice; defects of internal secretion should ever be in the mind of physicians at all times when confronted with any disease of the nervous system and a careful record kept of symptoms for future comparison with the experience of others.

But with regard to nutrition we have already well founded knowledge to work upon and we are not afraid to declare that every infant has the right to good mother's milk and that it is nothing short of a crime to deny it. Many children are denied this blessing because it is not insisted on by the family physician and too many bottle fed babies are fed injudiciously and carelessly because the matter is left to the uneducated judgment of the mother, or grandmother. There is no greater or more interesting problem in preventive medicine than that of the nutrition of infants and young children. If their nutrition has been all that it should have been little fear need arise for their gastric, pulmonary or cerebral welfare in later years. It is in the period of infancy, when the growth of all the tissues, but especially that of the nervous system, is most rapid, that improper or insufficient food plays most havoc.

Rickets is responsible for more neuropathic constitutions than we realize, for let us remember that rickets is a disease of all connective tissue, not only of the bones but also of muscles, blood vessels, lymph channels and white matter of the central nervous system. (Hence the spasmodic of rachitic children.) Small hearts and flabby hearts, small blood vessels of feeble tone

and hence defective growth of the entire body may be traced to this disease or an allied disorder of nutrition and find frequent illustration in the under-sized, anemic and neurotic children seen in our schools. Indeed this disorder may well be held responsible for the neurotic constitution which later in life manifests itself in hysteria and manic depressive insanity, or neurasthenia. For such a constitution the ordinary troubles of life are too great a burden. Another similar condition seen later in childhood but apt to be overlooked is secondary anemia due to chronic intestinal indigestion and chronic malnutrition. Such cases are observed soon after the age when the child's diet is no longer considered a specialty and the age of three to twelve years is one in which parents are too apt to let children eat what they take a fancy for and without regularity. Victims of chronic intestinal indigestion are illustrated by the pale, sallow feverish child with capricious appetite, constipated at times, at other times suffering from headaches, lassitude, cold extremities and disturbances of sleep, i. e., night terrors, also from facial tic, habit, spasms, even convulsions, and always general unhappiness and irritability, all or any of which prevent the child from meeting the exactions of school life and other social responsibilities, thus causing depression of spirit and perhaps laying the foundation for dementia or at least hypochondriacal tendencies and neurasthenic symptoms which crop out at adolescence or later, when the responsibilities of life increase without a proportionate increase in nervous energy. It is from such that the sexually abnormal or perverted are recruited.

(The subject of dietetics has been greatly neglected by our profession and by our public schools. It should be adequately taught in the school curriculum. Physical culture is taught in a practical manner but of what use is physical training to those who have no foundation material to train because they are badly fed! In our cities many a child goes to school on a breakfast of coffee and bread and rushes home at noon to partake of a luncheon of similar caloric and proteid value or buys it at a bakery. May not much of the mental retardation found in public school children be due to this? And have physicians no responsibility, private and public, in connection with such conditions?)

What are we, as physicians, doing to bring about more efficient instruction in dietetics in the home and the school as well as in our medical schools?

There are, of course, still other physical factors which predispose to mental breakdown or cause actual cerebral lesions, viz., the infectious diseases—typhoid, scarlet fever, poliomyelitis and, in adults, alcoholism and syphilis, but these causes are more particularly related to the problems of public health, sanitation and hygiene, rather than to individual factors. Just a word as to alcoholism and drug habits. These are more often a symptom of a neuropathic or psychopathic temperament than a cause thereof and the mere giving up of alcohol or other drugs is not sufficient to bring

about the cure of the patient. The physician should seek deeper for the underlying mental attitude and the factors in the environment which have brought about the habit.

So far we have been speaking entirely of physical causes. With regard to psychological factors in the causation of the neurotic constitution and of actual insanity, there opens a large field for investigation, not only by the psychologist, but also, a field well worth the interest and study of the family physician. It is a field but poorly tilled as yet. The more we learn, however, about these psychological causes the more we can do to prevent mental disorder from progressing to the actually insane stage. The general practitioner is in a position to bring the patient under the guidance of those trained in psychopathology before the patient has reached the stage where commitment to an asylum is imperative. (Many such commitments could be avoided if our general hospitals and dispensaries were equipped with psychopathic departments.)

The only way to be adequately informed as to these early causes and symptoms is to study each individual case by itself, as a clinical entity, rather than as one of a group, to delve into the biography of the patient deeply enough to arrive at the root of the morbidity. The roots of morbid personality reach down through adolescence into early childhood and even infancy. They are acquisitions from the environment with all that broad term comprises. When we have excluded physiological influences such as have been indicated above, the majority of which, by the way, are predisposing but not actual causes of nervous and mental diseases, we are only half way on the road of our investigation and ready for the discovery of what is still more important—the effects of psychic traumatism. Traumatism to the delicate but ever expanding mind and soul of the child. This is not a fully formed thing at birth or at any time but a constantly changing personality ever seeking free expression of itself in reaction to its environment, ever changing in its effort to adjust itself to circumstances and reconcile them with inherent tendencies. The foundation for the functional psychoses is laid in the early plastic period of the child's development. Tendencies to melancholia, hypochondria, mania, the phantasies of dementia or the delusion of paranoia, tendencies to irritability, easy discouragement, unsociability, and lack of zest in living, no matter how late in life they occur, have their origin in morbid impressions made upon the mind of childhood or upon faulty education of the child. They begin in the home as do the antidotes to such tendencies. It is natural for children to have sunny and courageous dispositions; if they are otherwise something unnatural has entered into their early environment. Many published autobiographies in general literature reveal this, many more autobiographies from our psychopathic patients, could they be fully obtained, would throw floods of light upon the causes of functional psychoses and neuroses and so indicate to the parents of the future what they might do to prevent the development of morbid personality

in those so predisposed by reason of a weak nervous system.

We consider it criminal negligence to deliberately expose children to the dangers of the infectious diseases and is it not just as criminal or negligent to let them be exposed to mental disorders? Few are the children who outgrow the impressions made upon them in early childhood—impressions made by confusion and strife, cruelty, physical or mental, by gloom and general unhappiness in the home, nor do they easily, if at all, outgrow the effects of suppression of free development of mind and soul caused by misapplied punishment and needless unwise repression of their activities. And inasmuch as sexuality, or love and general affection, is the fountain head of all energy and the motive power of efficiency, it is especially important that the child's sexual, or in this connection I prefer the word *affectional*, life be considered and developed in a normal and even manner; it is important that precocity of this energy on its physical side be guarded against and when aroused, directed into healthful activity which takes the mind from self. But it is equally important that this energy on its spiritual or mental side be not stunted and repressed but developed and directed in a way to arouse altruism and unselfishness by example rather than precept.

The problem is, therefore, one involving child study particularly, and especially the study of and proper training of the emotional life of the child. This also implies the sexual life. The sexual impulse develops, in some form, very early in life, and it is the sexual impulse even when not consciously sexual which is the motive power of all human energies, strivings, ambitions and accomplishments from early childhood through adolescence to senility, and by careful analysis investigators in mental disorder have discovered that in almost every case of functional nervous or mental disease and especially in the psychosis known as dementia praecox there has been either a faulty development, or a disturbance of the sexual or emotional impulses in early years, even as far back as infancy and childhood when this impulse is normally veiled in the form of general activities and generalized affections and interest. It is, therefore, incumbent upon physicians to be prepared to recognize early the deviation from normal and to formulate instructions, for parents as well as children, in mental hygiene, in a scientific and comprehensive way rather than to let this important matter be taken out of their control by poorly informed laymen. It is from the instructions given by the family physician that the parent, the teacher, and the clergyman must be informed adequately in matters of sexual and mental hygiene and its bearing upon psychopathology in order that each in his or her sphere may be a competent counselor to the child in times of special stress and danger. The disturbance or faulty development of the love impulse may have its root either in precocious excitation of the purely physical channels for its expression or on the other hand in the repression or denial of gratification of it in normal ways because of lack of parental affection and opportunities of

reciprocation and complete confidence and harmony between parents and child. Either condition may lead to seclusiveness in the child, to introspection and secrecy, curiosity about oneself and consequent physical disturbances from self-indulgence, in other words, to introversion and, therefore, perversion of the general affections with which the specifically sexual function is so closely bound. This is the basis for the "shut-in personality" characteristic of every case of dementia praecox and many allied neuroses. Also it may lead to a tendency to a state of vague fear, anxiety, suspicion, gloominess of temperament, and tendency to be easily discouraged—all of which are found later in the adult patient who suffers from cardiac neuroses, hysteria hypochondria and incipient paranoid states of mind which can be traced to ungratified sexual longings. In such the affections have often been too strongly fixed on one parent and when removed from contact with this, the patient falls by the wayside from lack of other interests and affections.

In the bashful, seclusive child who cannot play his part in the social world we have the same mechanism and the same causation, namely, an unwise repression of the child's energies by parents who fail to direct these activities in healthful channels. Aroused energy must have an outlet somewhere, and if not rightly directed in channels for expression according to the child's capacity and interests will return unto itself, unto its source which is fundamentally connected with the development of the sexual organs. In this connection the importance of vocational education of our adolescent school children, education suited to their desires and capacities, must be kept in mind. If such energy involutes it eventually dies, or becomes latent, and the individual fails at the growing period (adolescence) to develop fully; nervous cells, glands of internal secretion and the whole neuropsychic life become warped from lack of impetus and we have the picture of the typical adolescent form of insanity known as dementia praecox.

But there are many other forms of mental disturbance of a milder degree, neurasthenia, psychasthenia and forms of melancholia, hysteria and mania which have their foundation in faulty adjustment to the environment because of disturbance and lack of application of the emotional faculty and the treatment of these more hopeful disorders is to be found firstly, in psychological analysis of their development so that the patients' makeup and capacities may be clearly understood by them as well as the physician, and secondly, in giving these sufferers what he or she always lacks—a definite opportunity for expressing emotion according to functional capacity, in ways which satisfy the affections. The affections and the ethical and altruistic senses as well as the motor activities which make for creative and productive work of an individual are closely related and the one is a complement of the other. Here is where a healthy moral training becomes an important factor in the prevention of these disorders and a healthful ethical and vocational interest an important means in their treatment. But it must be an interest which makes one give out, rather than

receive, for after all man is not just an animal body but has also a soul, and functional nervous and mental diseases are in a broad sense of the term diseases of the soul or, if you prefer, of the emotions. And when we undertake to treat them we cannot afford to overlook this point. Not only is the patient's mode of reasoning at fault, but more often and to a greater degree, there is something wrong in the deeper regions of the mind where lie the spiritual faculties, and the patient is at odds with his fellows, with himself, and with his God.

There is no harmony in either the inner or the outer life—all is disharmony and chaos. There is no definite aim in life. There is no real love in the heart—and when love is absent there is sure to be either its substitute, hatred, as in the paranoiac, else a morbid love of self, as in the hypochondriac or hysterical, or even a complete vacuum, so far as love of anything goes, as in hebephrenia or melancholia. In other words, there is no zest for anything outside of oneself. The origin of such a condition is in some disturbance, perversion or maladjustment of the emotional life; the individual, if an adult, has failed to find normal satisfaction for the love impulse and its complete fruition in a happy union with the life of another, or else, this denied, to find a compensatory channel for its expression such as a strong intellectual interest or an absorbing work for the sake of someone or something, be it ever so vague. Energy has been shunted off its normal track and found none other; it therefore has involuted instead of evolved. The treatment of such a condition is to be found in moral ideals which will reawaken this primal energy and direct it away from self.

The physician cannot deal with these disorders unless he is either willing to co-operate with the physician of the soul or himself has sufficient insight and faith to recognize that the soul of the patient is in need of treatment. The clergyman on the other hand will need the help of the physician even more in order that an exact diagnosis of the case shall first be made and the causes of the disease made plain.

It is pitiful to see unhappy wives and, sometimes, husbands going to doctor after doctor for the treatment of this, that, or the other vague symptom—for gastric disturbance, insomnia—lack of energy—nervous and mental depression, and given useless drugs or prescribed trips to Europe on which they still carry about the same old self and return again to the same mode of life with the root of the disorder untouched. In such people the neurosis is a symptom of the social disorder prevalent today in all classes of society; if the patient is of the opulent class the disease is often an equivalent of a discontented mind which has failed to find pleasure in the work at hand or to see the relation and importance of that work to the whole social scheme. All thinking persons must have an aim and an ideal in life. What is most needed is something for which one gives oneself, and those who are always trying to get without giving are the most miserable. To be needed and

to realize where one is needed most in the world is the best balance wheel for one's psychology.

As to religious or moral education of children; the day is coming when the broad-minded physician's aid will be more and more sought, for he more than anyone should know the whole man, as an evolving organism with mental and spiritual forces at work in him which are closely related to the physical.

My last word is a plea that the family physician may continue to hold that intimate relation with the patient such as the "doctor of the old school" had, that he may also study and know his patient in all his attributes and that the specialist although he must confine his work to one organ may not be blinded to the greatest organ of all, the mind; and that all of us may see ever more and more clearly our relation to and our responsibility for the education of the children of this and future generations.

THE INDUCTION OF ANESTHESIA AND ETHYL CHLORIDE.

By CARLETON DEDERER, M. D., Los Angeles.

The induction of anesthesia is far more important than its subsequent continuance. One of the leading investigators in the field of anesthesia, George W. Crile,¹ M.D., of Cleveland, has not only laid great stress on the avoidance of fear before operations, but has shown chemically the effect of fear on the central nervous system. He says: "In rabbits subjected to the emotional stimulus of fear alone the brain-cells showed precisely the same change as those which resulted from physical injury, namely, an immediate stage of hyperchromatism and a later stage of chromatolysis; a disturbance of the nucleoplasmic relation and a final disintegration of many cells."

By using ethyl chloride for inducing anesthesia the patient is as free from brain trauma arising from emotional stimuli as by any other method per se. The two chief ways of eliminating fear before operations are by drugs and by suggestion. Drugs are not always necessary.

Suggestion should be of a constructive nature. The anesthetist should endeavor to fill the mind of the patient with positive conceptions of the successful outcome of the operation without actually referring to its immediate results. The psychological relationship between the anesthetist and the patient may be divided into three parts: 1, Salutation; 2, Foundation; 3, Construction.

1. The salutation consists chiefly of effecting an introduction of the anesthetist to the patient.

2. The foundation of the psychological relationship should be formed by remarks which take cognizance of present conditions, recognizing them, then finishing their consideration and throwing them out of mind by some remark such as, "I guess you will be glad when this is over." In this period the anesthetist should find out something in which the patient is interested.

3. The period of psychological construction accompanies the beginning of the administration of

the anesthetic. To a certain extent the patient has to turn his attention to everything the anesthetist says. It is advisable for the anesthetist to make some brief remark about the method and object of the anesthesia such as, "This makes you sleep so that you will not feel anything." In rapid succession the anesthetist should change the subject to elaborations of ideas which he thinks can retain the attention of the patient. If the anesthetist constantly furnishes the patient with numerous subjects of thought he will succeed in eliminating much of the fear which is usually experienced by the patient. These subjects may be anything from a merry-go-round to baseball. As a final remark the anesthetist may say, "You will feel fine when you awake."

Ethyl chloride is dispensed in glass tubes. Its flow is controlled by a lever valve. The aperture should be large enough to give a stream which will not cause freezing.

Ethyl chloride is administered on the ordinary drop method inhaler covered by eight layers of light cotton gauze. It is well to hold the tube near the inhaler to prevent unnecessary cooling. One hand should be placed over the inhaler to aid volatilization. The ethyl chloride is squirted on the inhaler for periods of a few seconds alternating with equal periods of intermission. In the case of a four-year-old child, for instance, this procedure is continued for about one minute at which time the intermissions are occupied by the pouring on of ether. The administration of ethyl chloride is gradually diminished after one and one-half minutes but may be continued thus until after the stage of ether excitement is passed. As a rule the physical manifestations of ether excitement may be avoided by continuing the ethyl chloride for three minutes in a child of four years, for five minutes in a child of twelve years, for seven minutes in a woman and for nine minutes in a man. About ten grams of ethyl chloride is used for the induction of anesthesia in a child four years; about fifteen grams is used for a man.

The physiological action of ethyl chloride is similar to that of ether, but about five times as powerful. On this account it should be given always in an open inhaler instead of in a closed bag as originally introduced.

There are several physiological signs which have to be borne in mind. Generally by the end of the first minute a child, for instance, will be entirely unconscious of external stimuli. The respirations will then become more frequent and deeper. This is a signal not to push the administration of ethyl chloride but to start the ether.

The eyes of the patient should not be covered as the corneal reflex and pupillary reflex should be tested at least every half minute in the beginning of the period of unconsciousness. The corneal reflex and of course the pupillary reflex should not be paralyzed by ethyl chloride. The hands of the anesthetist should be clean for testing these. A safe and convenient way to test the corneal reflex is to make the upper eyelashes gently touch the cornea by turning them downward. If present the lid will twitch.

¹ Crile, Geo. W.: Shock, The Journal A. M. A., Dec. 6, 1913, p. 2028.

Ethyl chloride has several advantages: it has a pleasant odor; it takes only a short time to induce anesthesia with it; the vapor does not irritate the respiratory passages. For these reasons and on account of its simplicity of administration it reduces to a minimum injurious emotional stimuli. Patients rarely struggle against ethyl chloride. This is an advantage especially in cases of abdominal or thoracic-visceral injury.

After induction by this method the anesthetist may choose the best method for continuance of anesthesia.

HAIR-BALL TUMOR OF THE STOMACH.

By ADOLPH BERG, M. D., San Francisco.

The finding of a hair-ball tumor or trichobezoar in a human being is rare enough to be reported. The death rate is high and in the present case the true condition was overlooked by several physicians in this city and Denver, Colo., after a history of hair eating had been given to them by members of the family. Butterworth, in what is probably the best article written on the subject, hoped in the future to make a diagnosis before operation, but as I have not seen any more reports from him, he should at least be given the credit for suggesting the correct diagnosis.

Hair-ball tumors or bezoars are not uncommon among animals, as "hair-licks" are frequently found in cattle, but the practice of swallowing hair in great amounts in the human race is rare. Bezoars may be formed of hair or vegetable fibers or they may be composed of lime or magnesium phosphate as found in the wild goat of Persia. The latter are called the Oriental bezoars and have been used for their supposed medicinal value.

Mrs. X, age 24 yrs., has gained 20 pounds since her marriage one year ago. No children. No miscarriages. The past 10 years she has suffered from attacks of vomiting and abdominal pain lasting three to five weeks and accompanied by great emaciation. The last attack occurred two years ago. She has enjoyed fairly good health in the interims. She could usually feel a freely movable mass in different parts of the abdomen.

Menorrhagia and metrorrhagia were especially marked in the spells of vomiting.

The most frequent diagnoses have been appendicitis, one or both kidneys movable and uterine fibroids, and various operations were proposed.

Owing to the conflicting diagnoses operation was refused.

March 23rd, 1914. Patient is suffering severe intermittent pains in epigastrium and vomiting. She has not been feeling well and has vomited several times the past three weeks. Palpation of any part of the abdomen causes pain in epigastrium. Muscles of upper abdomen rigid and no mass can be outlined. Uterus small and freely movable. Fetid breath. Tongue coated. Temperature 99.5°. Pulse 120. Leukocytes 11,000. Urine negative. One grain opium suppositories gave only slight relief.

March 24th, 1914, 8 a. m. Severe pains and vomiting. No bowel movements from enemas. No relief from hot bath. 8 p. m. Fairly comfortable day but towards evening vomiting of much frothy mucous and severe pains. Patient very weak. Whole abdomen distended and rigid. Tumor not palpable. Temp. 101.5° F. Pulse 126. Refused to submit to an exploratory operation. Further questioning brought out the suggestion

from the mother "if hair eating could in any way cause the pain?" A positive diagnosis of hair tumor was made and consent was given to operate.

Patient stated that a few years ago she passed, per rectum, a small hair-ball with long strands of hair attached. She has frequently found hair in the vomitus.

The suggestion that hair eating could have anything to do with her illness had been laughed at so much by most of her physicians that no mention was made of it before this time.

She was given a hypodermic of $\frac{1}{4}$ gr. morphine and when she reached the hospital the entire abdomen was relaxed. The lower border of a smooth, hard mass was felt lying transversely high and deep under the left costal arch.

Operation at St. Joseph's Hospital 11 p. m. Dr. Roy H. Morris assistant. Median epigastric incision. A tumor was found lying in or back of the stomach. The mass was with much difficulty dislodged as it was tightly wedged against the esophageal opening. The stomach was somewhat dilated and showed several striae similar to those of pregnancy. The intestines were distended and congested. A vertical incision from the greater to the lesser curvature of the stomach disclosed a very foul smelling yellowish fluid which was swabbed out together with some loose hair. Some difficulty was experienced in keeping the stomach walls against the gauze pads to prevent the fluid entering the peritoneal cavity in the manipulations of removing the hair mass. The mucous membrane was normal in appearance.



A search for intestinal hair-balls was unsuccessful and was greatly interfered with by the intestinal distension. The uterus was small and adnexa normal.

The stomach incision was closed in two layers and reinforced by a serous stitch, using a running plain catgut suture throughout. The abdominal wound was closed with catgut and a few deep silkworm sutures. The next morning the nurse reported finding fine hair particles in the glass of water used for washing the patient's teeth. Only a slight retching followed the operation. Beef tea was given on the second day and solid food on the fourth.

The abdominal wound suppurated in a few days probably due to the breaking down of fat and slight soiling of operative field by stomach contents. The pus was foul smelling like that of a colon infection.

Operative wound was healed and patient left the hospital on the 14th day. She has had several attacks of diarrhea and many small fine hairs have been found in the stools. (May 28th.) She states that the hair eating habit has been cured.

The hair mass is a perfect cast of the stomach with a saucer-like depression at the esophageal end. The mass was smooth but some hair was torn out by the tenaculum in the attempts to deliver it from the stomach. Most of the hair

pulled out show it to consist of lengths of $\frac{1}{2}$ to 1 inch and closely packed to about the hardness of a baseball. Weight in moist condition, 16 ounces. Length 6 inches and circumference at the middle, 9 inches.

Heazlitt reports hair-ball tumors having been found in about 70 cases, 42 of which came to operation, the remainder being found at autopsy. Most of the cases were operated on for other conditions and in only 10, including his own, was the diagnosis made before operation. He removed a hair-ball from the stomach but in a few days he had to perform a second operation at which he removed a hair-ball at the ileo-cecal orifice to which he attributed all of the original symptoms.

The ages of occurrence have been from 8 to 37 years. The weight of hair tumors has reached six and one-half pounds. O'Hara states that about one-half die from perforation.

In J. Knowsley Thornton's case the two-pound hair mass extended well into the duodenum and esophagus and he remarks that if the tumor had remained much longer the diagnosis could easily have been made as it would have presented itself at the mouth.

Excepting two or three cases hair eaters are generally of sound mind, the insane usually swallowing also foreign bodies. The patient of this report was intelligent, but during such periods as hard study in high school, would bite off the ends of her hair and swallow it, more than at other times.

Several have mentioned the vomiting of frothy mucous. The tumor in this patient was wedged so tightly against the cardiac end of the stomach that all the mucous must have been secreted in the esophagus, also the vomiting differed entirely from the foul smelling stomach contents.

Fenwick thinks that small hair concretions are probably not infrequently the cause of obstinate constipation in children, but later as the hair is worn in the adult style the habit of hair eating is discontinued and any concretions are gradually evacuated.

The diagnosis is of some importance for if the tumor is firmly fixed it might easily be mistaken for an inoperable carcinoma unless gastrotomy was done and the stomach explored.

Diagnosis—1 Age and sex. Usually occurs in young females. 2 Duration of complaint. This is seldom less than 10 years. In one case reported by Russell a woman aged 31 years died following an abortion and at autopsy a four and one-half-pound hair tumor was found dragging the stomach into the pelvis. The tumor had been growing 17 years and the patient had enjoyed normal health. 3 Physical characters of tumor. They are smooth and the hardness is striking, and are usually freely movable. 4 History of hair eating. This may be denied, especially in children, through fear. The vomitus and stools should be examined and it may be of some value to also examine the water used for washing the teeth.

The X-ray has been used successfully in making the diagnosis in one case, in which three hair masses

were found in the stomach. In the other case the X-ray, following the administration of bismuth, "showed a beautiful picture of a tumor occupying the whole stomach and extending into the duodenum," but the exact nature of the tumor was not diagnosed before the operation.

I am indebted to Dr. P. H. Mattner for the photograph.

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INTRANASAL OPERATION FOR DACRY-OSTENOSIS, WITH CASE HISTORIES.*

By L. D. GREEN, M. D., San Francisco.

In presenting this subject to you my object is to bring out in discussion the advantages and disadvantages of this method of treatment for the relief of dacryostenosis. In an article published in the CALIFORNIA STATE JOURNAL OF MEDICINE for January, 1914, I have described the procedures as practised at the present time, particularly that of West and Bryan.

The operation consists of making an artificial opening from the lacrimal sac into the nose, as in the majority of cases the stricture is located at the junction of the sac with the duct.

Under cocaine and adrenalin anesthesia the mucous membrane and periosteum of the area immediately in front of the anterior end of the middle turbinate are raised in the form of a quadrilateral flap, with its attachment below and turned down over the inferior turbinate. This will expose the bony nasal wall of the lacrimal fossa. With appropriate chisels or burs the bone is removed till the sac with its membranous attachments is clearly exposed. This is firmly grasped with forceps and a piece from its nasal wall excised. Before the mucous membrane is replaced in position, a piece of the flap at its postero-superior angle is cut away so as to leave the opening into the sac free. The nose is then packed with gauze which is left in place till the following day when it is removed.

The sac is irrigated daily until healing is complete when it will be found that a permanent opening exists and the condition cured.

To prove that drainage is free a $\frac{1}{2}\%$ solution of fluorescein is dropped into the eye. A piece of cotton which has been placed in the nose at the site

* Read at the Forty-fourth Annual Meeting of the Medical Society, State of California, Santa Barbara, April, 1914.

of the opening should be colored yellow if the secretions pass through freely.

Caldwell, in 1893, called attention to the desirability of preserving the canaliculus, as by its capillary action it causes the tears to flow into the sac. When it is slit this action is destroyed and is apt to interfere with proper drainage. Since doing the intranasal operation I have become convinced, at least to my own satisfaction, of the advisability of leaving the canaliculus intact.

Where drainage is free the patients will sometimes remark that they feel air blowing in their eye when forcibly blowing their nose. This is more pronounced in those cases where the canaliculus has been slit. Usually it is of little importance but in my estimation is a distinct danger and the operation contra-indicated where a cataract or other intraocular operation has to be performed.

In cases where there is a marked deviation of the septum to the side of the stricture, a submucous resection may have to be done before access can be had to the operative field.

The following cases will illustrate the manner in which recovery takes place in those patients where the operation has been successfully performed:

Case 1. Mrs. L. C., age 33. Epiphora of right eye began about Feb., 1911, when patient went to a general practitioner who prescribed drops, but obtained no relief. Three months later felt a lump over region of sac which on being pressed forced out pus.

Then went to specialist who advised removal of sac, but patient refused. In 1912 went to one of the local clinics where the canaliculus was slit but no probes were passed. No benefit resulted. Later went to another clinic where an attempt to pass a number two probe failed on account of stricture being present.

Nov. 13, 1913, was referred to me for operation. On examination I found right lid thickened, conjunctiva inflamed, swelling over region of sac, canaliculus slit. I operated intranasally and on opening sac a large amount of pus exuded. Irrigated daily till Nov. 26th, free drainage being present all the time. Dec. 1st patient discharged, cured. Feb., 1914, four months after operation, drainage is free and patient entirely well.

Case II. Mrs. T. C., age 45. Complaints of eyes watering for past six years, during which time much pus was present. Was treated for four or five years with probes but obtained no relief. In June, 1912, came to San Francisco, where treatment with probes was continued after right canaliculus was completely slit and left, partially. No improvement. August 1, 1913, was referred to me. I operated intranasally on left side. Some pus exuded at the time. Aug. 2 very good drainage. Irrigated daily for about a week. Aug. 15, healing complete and condition cured on left side. Aug. 15, operated on right side. Has high deviation of septum to right but patient refused submucous resection so had some difficulty on account of nearness of septum to right lateral wall. Obtained free drainage but for fear of having adhesions form between the septum and operated area, treatment was continued to Nov. 15, longer than usual, when patient was discharged cured. Feb. 3, 1914, drainage free on both sides. No epiphora or other symptoms of dacryostenosis. Fluorecein passes freely through both sides.

Discussion.

Dr. Kiefer, Los Angeles: For how long a time have those operated cases been followed? It would

seem that there would be great danger of closure of the artificial opening into the nose, such as frequently follows operations on the antrum of Highmore.

Also discussed by Dr. Hulen, of San Francisco.

Dr. Green: In answer to Dr. Kiefer's remark that the opening into the sac may close, I must say that this is true if it has not been made large enough. It happened in my first cases, where I did not remove enough tissue. When enough bone and sac has been removed, this will not happen.

SHOCKLESS SURGERY.*

By A. B. COOKE, M. D., Los Angeles.

For many years it has been conceded that the greatest danger of modern surgery consisted in the ever-present possibility of surgical shock. With the epoch-marking discoveries of anesthesia and, later, of antiseptics the chief obstacles disappeared. But it was recognized that there still remained a danger, insidious and menacing, which all too often thwarted the efforts of the most painstaking and skillful operators. To overcome this danger one authority taught that speed in operating was the remedy, another that perfect hemostasis was the great desideratum. And still there constantly occurred and are occurring cases in which life is jeopardized, indeed often sacrificed by the advent of conditions which seem to mock the precautions of the most brilliant clinicians.

The picture is familiar to all. A patient whose general physical condition is excellent, is subjected to an operation in itself not particularly formidable and which is performed with reasonable skill and dispatch. He comes off the table at the end of forty-five minutes or an hour a shaken and battered wreck, with features of a ghastly pallor, drenched with perspiration, pulse rapid and thread-like, respiration shallow and sighing, pupils irregular,—in short, presenting every appearance of impending death and requiring the most intelligent and unflagging attention for hours to stem the ebbing tide of vitality. This is surgical shock. Every surgeon of large experience has seen it time and again, and the aggregate of the anxious hours he has spent because of it would form a large chapter in the record of his professional life.

Since the publication by Dr. Geo. W. Crile in 1897 of the thesis which won the Cartwright prize he has been regarded as the foremost authority upon the subject of shock. After years of patient study and a prodigious amount of experimental investigation he now tells us that he has perfected a system or method by means of which surgery may be practically freed from this great source of danger. Those who know Dr. Crile, his integrity as well as his preeminent ability, can not but listen with respect to any utterance he may make upon the subject.

Anoci-association is the name applied to this new method of shockless surgery. That we may the more readily comprehend the principles in-

* Read at the Forty-fourth Annual Meeting of the Medical Society, State of California, Santa Barbara, April, 1914.

volved, let us take a brief glance at the theory underlying it.

In his primitive state the two most important problems presented to the ancestral man were the securing of food, and escape or defense from threatened danger. The solution of both these problems depended upon muscular exertion, and in consequence the motor function of man, as of other animals, became highly developed and specialized. While modified in some degree in the gradual process of adaptation to altered environments, the physical characteristics of the man of to-day remain essentially the same as those of his phylogenetic forbears. Thus we observe that the portions of the body most abundantly supplied with sensory nerve-endings are, generally speaking, the anterior portions,—those most exposed to injury in attack,—while the posterior portions are markedly less susceptible to pain and the internal organs are comparatively non-sensitive.

Irritation of a sensory end-organ anywhere is followed by a definite sequence of events, i. e., perception of the painful sensation by the brain centers and the immediate automatic liberation of a motor impulse designed to ward off the harmful agent or to remove the offended member from the zone of danger. Fear also plays a part and however well controlled in its manifestation, adds a disturbing psychic factor to the physical phenomena thus inaugurated.

Under inhalation anesthesia two things only are accomplished, namely, consciousness is abolished and the power of voluntary motion is paralyzed. The sensory nerve-terminals are as capable of being irritated, the afferent nerve tracts are as capable of transmitting painful impressions and the brain cells are as capable of receiving them and of discharging efferent impulses, as though the patient were fully conscious. This has been conclusively demonstrated both in the laboratory and in the autopsy room. Sections from the brains of traumatized animals and from human beings dying in shock show easily recognizable alterations from the normal, the individual cells differing both morphologically and in their staining properties. And this is equally true whether the subjects were under inhalation anesthesia or not.

The conclusion is that the pathologic entity underlying shock is brain cell exhaustion resulting from the constant futile discharge of motor impulses in response to prolonged peripheral stimulation or irritation. As a consequence of this fatigue there is a progressive reduction of the blood-pressure, the vaso-motor centers become incapable of functioning because of the resulting anemia, and the condition we know as shock follows.

The foregoing is a brief summary of Crile's conception of the nature and mode of production of surgical shock. His conclusions are not universally accepted. In a recent rather labored article by Janeway and Ewing,¹ based, it would seem, upon a wholly inadequate series of laboratory experiments, it is categorically denied that the stimula-

tion of sensory nerves is capable of producing either exhaustion of the brain centers or any considerable degree of reduction in blood-pressure. It is interesting to note in passing that these investigators attribute shock to loss of vaso-motor control superinduced by the hyperrespiration incident to ether anesthesia, to loss of blood, and to visceral trauma.

It is not without considerable significance that, in contrast with the dozen or so laboratory experiments and the relatively short time devoted to them by the above writers, Crile's researches included more than 1200 animal experiments extending over a long term of years, in addition to the careful clinical observations possible only in an extensive surgical practice.

Our chief concern at this time, however, is not with the theoretical, but with the practical,—not with the physiologic and laboratory phases of the subject, but with the clinical. Whatever the true nature of shock and the exact mechanism of its production, there can be no dissent from the proposition that its prevention is supremely desirable. If the hypothesis is admitted that the conductivity of the afferent nerve tracts and the ability of the brain cells to perceive stimuli are not abolished nor appreciably diminished by general anesthesia, it becomes at once apparent that neither theoretical objection nor captious criticism should deter us in the adoption of every additional expedient which has proved its value in lessening operative hazard.

The cardinal principles of anoci-association are four in number, namely:

- 1.—A preliminary hypodermic injection of morphine (gr. 1/6) and scopolamin (gr. 1/150) one and a half hours previous to the operation, repeating the injection an hour later in half the dosage, if the desired effect is not obtained.
- 2.—The administration of nitrous oxide and oxygen as a general anesthetic, instead of the customary ether.
- 3.—Complete blocking off of the field of operation by the infiltration of a weak solution ($\frac{1}{4}$ per cent) of a quickly acting non-toxic local anesthetic, preferably novocain.
- 4.—At the completion of the operation the infiltration of all tissues traumatized (except the skin) with a mild solution ($\frac{1}{4}$ to $\frac{1}{2}$ per cent) of quinine and urea hydrochloride.

It would manifestly be impossible within the time limit allotted to this paper to discuss these several principles in detail. And it would probably be unnecessary to do so before this body in any event. But it may be emphasized that no one of them is unimportant. Together they constitute a definite, thoroughly tested system, and each step is absolutely essential to its successful application.

It is at once evident that the only feature of the method requiring especial skill and training on the part of the operator is the technic of the local anesthetization. To accomplish its object this must be as complete and perfect as though no general anesthetic were to be employed. With-

out experience along this line no one can expect to be entirely successful either in his first or his first half dozen cases. On this point Bloodgood pertinently says:² "No surgeon who has not performed many operations under local anesthesia only, will be able to get the same results from the combined method. When the patient is awake and you attempt an operation under local anesthesia, you will always be informed when a painful act takes place, and you will be surprised at the difficulty of making such an operation perfectly painless. . . . It is my opinion that the first step in the development of this new technic is to perform as many operations as possible under local anesthesia."

A distinct advantage of the method which is often overlooked in discussing it, is that it encourages, in fact compels, gentleness of manipulation. Nitrous oxide anesthesia maintained within safe limits is never as deep and death-like as that of ether and undue traction and trauma are much more apt to be resented by muscular contraction and rigidity. Rapidity in operating is, of course, desirable, provided it does not necessitate the sacrifice of thoroughness and due respect for the tissues. The surgeon who is too busy to concede the possible advantage of gentleness in his work will naturally have little patience and less success with this method.

Closing,—the real benefits of anoci-association in preventing post-operative pain, shortening the period of post-operative disability, and saving life have been emphatically attested by such well-known surgeons as M. L. Harris, Bloodgood, Cabot, Carr, Lower and a host of others, in addition to Crile. The first mentioned (Harris³) goes so far as to say that he has practically discarded general anesthesia and believes the method of nerve-blocking alone is so simple, so successful and possesses so many advantages that it marks the passing of the general anesthetic in surgical operations. This is truly "a consummation devoutly to be wished;" but few, perhaps, have as yet acquired sufficient exuberance of enthusiasm to endorse so radical a statement.

My own personal experience with the method embraces approximately 150 cases covering a wide range of different operations. Basing the observation on this personal experience I do not hesitate to say that in my opinion anoci-association represents the most notable step in the progress of surgery within the past two decades. Aside from the relief of human suffering and the saving of life, I count it the most gratifying feature of my surgical experience to have been able to perform a considerable number of major operations and find my patients uniformly in as good or better condition at the conclusion as at the beginning,—free from shock and with every promise that the period of disability would be both shorter and comparatively free from discomfort.

1. "The Nature of Shock" *Annals of Surgery*, Feb., 1914.

2. "Studies in Blood Pressure," etc. *Annals of Surgery*, Dec., 1913.

3. "Nerve Blocking," etc. *Journal A. M. A.*, Sept. 27, 1913.

THE NURSING SITUATION SINCE THE PASSAGE OF THE LAW.*

By GERTRUDE S. COURTRIGHT.

In approaching the discussion of a subject upon which such divergent views have been expressed, and which has been a basis for acrimonious private debate as well as legal argument, the task of treating the topic of this paper, in other than a partisan manner, is almost impossible. Naturally I will be charged with partisanship, irrespective of any observations that I may record, because of my personal efforts in connection with this particular legislation, no matter how accurate those observations may be—no matter how unaffected I may now be, personally, by the results that will follow, "as the night the day," upon the operation of this enactment of our legislature. Assuming that such an accusation of partisanship must therefore follow any article prepared by me—willing, nevertheless, under such conditions, to express my deductions, I wish to first make clear, if I can, the legal theory of such a law, and these preliminary statements are but an attempted repetition of information concerning the law applicable to the subject, and hence probably not as entirely correct as a lawyer would give it. The statute now provides, "No female shall be employed in any manufacturing, mechanical, or mercantile establishment, laundry, hotel, public lodging house, apartment house, hospital, place of amusement, or restaurant, or telegraph or telephone establishment or office, or by an express or transportation company in this state more than eight hours during any one day, or more than forty-eight hours in one week. The hours of work may be so arranged as to permit the employment of females at any time so that they shall not work more than eight hours during the 24 hours of one day, or 48 hours during any one week, provided, however, that the provisions of this section in relation to hours of employment shall not apply to nor affect the harvesting, curing, canning or drying of any variety of perishable fruit or vegetables, or to graduate nurses in hospitals." You will note that the statute in question arbitrarily designates certain classes of work and business in which, irrespective of the nature of the duty or work to be performed, a woman shall not be employed more than eight hours per day or 48 per week.

It has always been the assertion of those who have striven for the enactment of legislation limiting the hours of labor, that the purpose of such a law was the protection of women whose work was of such a character that long continued and closely confined duty in the performance of the work was detrimental to their health, and that, because of their "child-bearing possibilities," the health concerned must be protected and conserved against the demands of thoughtless and heedless employers.

No one will doubt that such legislation is not only beneficial to, but absolutely necessary, in behalf of many women whose earning methods and powers are limited, and with this legislation, when enacted

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with this purpose in mind, no reasonable or conscientious person should quarrel.

It seems to me that the *kind* of work to be performed by women should have more weight in framing this class of legislation than the place where work is performed, and that the relations of others to that work, the effect attendant upon its performance or non-performance, the possible necessities that cause or create the duties should be considered, as well as the fact that a *woman* is doing the work.

The question with which we are to deal is one that must be considered from several standpoints. Let me give an illustration that pictures a condition that seems to me fairly presents the contrast existing under this very statute. When eight hours have been served by a woman employed in any mercantile establishment, and as a result of the law, quitting time has arrived, it means that so far as producing profit for the employers is concerned, the doors of the shop close and work is suspended until another day. The customers of that employer are not concerned in the arrival of the hour, for if they have not made their purchase or transacted their business before closing hour arrives, the next day affords them equal opportunity for that purpose. As the sale of goods for profit is the only object of this employer, it is right that after a fair day's work from his women employees he be not permitted to require more. But in a hospital, while attending upon an operation, or the birth of a child, no matter whether the case be serious or otherwise, if the hour to quit comes for the student nurse in attendance, by force of law, she must cease the performance of her duty. The patient or patients are certainly not in the same category with the would-be purchaser or transactor of business who can or will wait to do or complete his business on the following day. The situation may be one of life or death and irrespective of the health of the healthy nurse, the life of the invalid should not be jeopardized by the arrival of an arbitrary hour at which attention and effort must cease, or a term in jail for violation of law provided as the only alternative of those compelled to complete their duty. At once I can hear the statement made that my illustration is false because of the ability of the hospital authorities to supplant one nurse with another at any moment. This answer is only made by those who have had no experience with illness or surgical cases. Almost as well say that in the midst of an operation the surgeons might be changed or that a patient will as quickly improve under a daily change of physicians. The fact seems to have been overlooked that women who are in training to become nurses are primarily engaged in learning how to bring health and strength to others, not solely to themselves. Admitting that their own health should be well conserved so that they may give to others that which they should strive to give, they have, or at least they should have, conscientiously dedicated themselves, their health, strength, cheerfulness, and vitality to the lives of others. Unless a woman entering upon the study of this profession is willing to give to the patients all

the inspiration of her mind and vigor and, cheerfully, grant her patient each day or night a large share of those qualities, as well as a degree of sympathy that can only spring from a kindly heart and an interested mind, far better for her possible patients that she should choose another profession.

Nursing must not be classed as work, it is a profession of sacrifice—not sacrifice in the sense of giving that which is unrecompensed—for the true nurse there comes recompense in witnessing the return to health of a patient nearing death; the recovery being somewhat due to her untiring effort and attention.

These beliefs lead me to ask of student nurses, are you enlisting in a fight for life or only in a business for money?

Either as students or graduates the work is hard, the strain great, the duty exacting, but there is no comparison with other lines of woman's life in satisfaction from the results. Are we to hereafter commercialize the misfortunes of others? measuring their miseries by their money? or should we give freely all that we have, taking no heed of fatigue, of possible injury to ourselves? Who would think of passing a law prohibiting a soldier from engaging battle more than eight hours a day or forty-eight hours a week when enlisted in the cause of his country?

Let us depart for the moment from these thoughts and take up the consideration of facts bearing upon the present situation. In hospitals, as compared with the past, is there any material change in the health or intellectual improvement of the student nurse as a result of the law? No. Grim necessity of daily recurrence has compelled almost every hospital that I have visited the last two months to violate the law, not only once or twice, but practically every day. And those hospitals that have obeyed the law are either thoroughly disorganized or refusing all but pay patients.

Unfortunate as it may seem, a hospital must meet its financial obligations, and this it cannot do, at least not at present, if but a portion of its patients contribute to the funds of the institution. I do not want to lay much stress upon this necessary refusal to accept poor patients, or the discontinuance of charity beds in contagious cases, that condition is indeed distressing; but dwelling upon that phase is provocative of the accusation that the law is being assailed by appeals to sympathy, and I am convinced that aside from the arguments that may be made on that ground, the law is justly open to attack.

The hours of labor may be regulated or restricted, but no governmental body nor officer ever lived, who, by a statute or threat of imprisonment could regulate or restrict the hours of sickness. The fact of sickness compels the duty of attendance upon the patient, and that attendance, if assigned to a student nurse, should be performed by one who through a desire to learn, and an interest in the patient, is not and should not be concerned in the location of the hands upon the clock. The very occurrence of the thought that at a specific

moment, soon to arrive, when interest in the work or individual can or must cease, is an *injurious distraction* that can do naught but lower the standard of attention required and lessen the amount of knowledge to be acquired. That such results have occurred is borne out by the statements of several directresses, one of whom cited an instance where a student nurse, in the midst of a critical operation, turned to the surgical nurse and called attention to the fact that it was time for her to go off duty. An expression of this character, isolated, I hope, not only indicates the attitude of the student nurse who is willing to assert the fact, but probably typifies the unexpressed thought of many others less assertive. With such a thought dominating the mind, how much knowledge is acquired? how much care taken of the patient? especially if a theater appointment with some one has been made upon the given hour.

Have the student nurses' hours been unduly long? From 7 a. m. to 7 p. m. with two hours each day and one hour off for meals; four hours off on Sundays and one-half day each week, which has been the schedule of general duty for day work, and while many hours may have meant unpleasant, fatiguing work, there have been as many hours of light, easy, and pleasant work as well. From 7 p. m. to 7 a. m. for one or two months, and all half days counted and given as off time, has been the schedule for night duty. A time when the majority of duties were almost perfunctory, a period that in the greatest number of cases meant only careful watching, while the mind of the student was being regaled by the effusions of some popular author or perhaps devoted to study—so far, where is the apparent necessity of shortening the hours so that the health of the "mothers of the future" may be preserved?

Admitting that eight hours is a sufficient number in which to do the work of the usual day, the criticism I make of this law is that it refuses permission to do the work *required or necessary* if that task cannot be done in eight hours.

To the layman, no reason appears why a patient should not receive the ministrations of four different nurses on special duty and many more on general duty in every 24 hours. A strict compliance with the law would compel that situation. We all know that as a rule one who is ill desires and should have as few persons as possible in attendance upon their wants. This is especially true of sick people whose illness or modesty prompts a degree of shrinking from intimacy with strangers. And there are few physicians who would not, because of mental disturbances of the patient, contend against this arrangement. It will not do to counter these suggestions with the assertion that if graduate nurses were employed no such condition would result. The conduct of a hospital is inseparably connected with the average ability of its patients to pay the expense, and its method of operation must be controlled with those facts in mind.

Those who conduct the hospital are certainly entitled to some return for their labor and upon their investment. If they conduct charity beds,

such must be charged to expense. The student nurses receive instructions from, as a rule, especially paid instructors, board, lodging, and laundry free, and a small sum in cash each month. And to these items add all the usual cost of hospital operation, and then add the expense naturally attendant upon increasing the number of student or graduate nurses so as to perform the work and obey the law, and I warrant that no hospital in this state will survive if it maintains a *reasonable schedule of charges* within the reach of the person of ordinary means.

No doubt this prediction will be denied—but time will show—if the law is eventually obeyed, whether it is justified. Our hospitals cannot be regulated or managed upon the basis of the eastern hospitals, where it is the usual thing to find an endowment fund working night and day to assist in meeting the expense. In California, but a few are so fortunate, and they may weather the storm, but the others will sustain the full effect.

Another feature of it that marks a wide difference between our hospitals and those in the eastern states, is that ours are much smaller in capacity. In theirs, during any hour, because of the great number of patients, a student has opportunity for observing a crisis and receiving instruction in handling the case through the period. There student nurses are on duty eight hours daily, 56 hours per week, and 12 hours night duty, and in the small hospitals do special duty more for purposes of instruction; but here, our small hospitals with few patients, the quitting hour may come at a time to prevent this observation and instruction, and to one who really wishes to perfect herself in the nursing profession, no chance should be lost in acquiring by observation, study, and contact all possible knowledge.

BOOK REVIEWS

Anatomy and Physiology for Nurses. By Amy G. Pope. 8vo, linen, pp. 554, illustrated. G. P. Putnam's Sons, New York and London, Publishers. Price \$1.75.

This is a good book, concise, explicit and practical. In the chapter on the Spinal Cord some explanation of lumbar puncture might not be out of place. The illustrations are not too numerous, clear and useful. L. E.

Guiding Principles in Surgical Practice. By Frederick-Emil Neef, B. S., M. L., M. D., Adjunct Professor of Gynecology, Fordham University School of Medicine, New York City. Sextodecimo; 180 pages. Surgery Publishing Co., New York. Price, Cloth, \$1.50.

In this little monograph Doctor Neef has given us a little work that is worth the perusal of every one that enters the operating room. While the operating room methods are but briefly described and do not even partially cover the field of general surgery, there is much that can be read with benefit to both surgeon and patient. The little chapter on wound healing is exceptionally clear and good, as is the part devoted to sterilization of the operative field, the instruments and the surgeon's hands. There is a lot of sound advice and good reasoning contained in this little book and it

is evidently prompted by conscientious observation and experience. While the number of methods and procedures described is a small and evidently personal one, they are probably those that the author has found best and most reliable. If a correction might be suggested, it would be that in the future the author refrain from the appearance of advertising a single brand of commercially prepared suture material, even if unintentionally. G. H. T.

The Occupational Diseases. Their Causation, Symptoms, Treatment and Prevention. By W. Gilman Thompson, M. D., Professor of Medicine Cornell University Medical College in New York City; Visiting Physician to Bellevue Hospital. Illustrated. New York and London: D. Appleton and Company, 1914.

This is the first book written in America devoted entirely to the subject of occupational diseases. Heretofore the subject has been treated briefly in works on hygiene and in monographs on particular forms of poisoning. The author takes up exhaustively every dangerous trade, gives us an idea of the methods used and of the various poisonous articles employed in the field of industrial arts. The etiology and symptoms of the numerous occupational diseases are considered in detail and a complete system of prophylaxis is laid down in each case. This country is far behind Europe in the prevention of trade diseases and it is only recently that the Federal, the State, and the labor authorities have seriously taken up the study of occupational disease. Every medical man should read this excellent work and familiarize himself with this important subject, for it is only by a widespread knowledge of the preventable waste of life through occupational hazard that we can hope to bring about the needed reforms.

W. F. McN., Jr.

Practical Therapeutics. Including Materia Medica and Prescription Writing, with a Description of the Most Important New and Nonofficial Remedies Passed Upon by the Council on Pharmacy and Chemistry of the American Medical Association. By Daniel M. Hoyt, M. D. Second Edition Revised and Rewritten. Published by C. V. Mosby Company, St. Louis. 1914.

This is a large book in which the size of the type and the breadth of the interspacing as compared with the subject-matter is based on law of inverse squares. For example, "Potassium Chlorate" is disposed of by the statement: "A useful antiseptic in the mouth or in the rectum; soluble in sixteen parts of water." Calcium salts receives two lines of description. Hexamethylenamine receives five lines. In this way the official preparations are disposed of in 200 anemic pages.

On the other hand, 130 closely printed pages tell all about the nonofficial preparations and their properties in much detail and with names and addresses of their makers.

An amusing commentary is supplied by the author who in a virtuous discourse on proprietary medicines points out that veronal (proprietary) and ethyl carbonate are practically alike in action—but in the body of the work veronal (plus names and addresses) receives nearly a page of letter press and ethyl carbonate, alas! nothing. Enough said.

H. D'A. P.

Lehrbuch der forensischen Psychiatrie. By Prof. Dr. A. H. Hubner. Published by A. Marcus & E. Webers. Bonn, 1914.

This volume discusses from different angles the

forensic aspect of psychiatric diseases. The size of the print and the clarity of exposition make the book very easy reading. A general psychological discussion, with symptomatology, occupies the first portion of the book. In this portion psychiatric diseases with their mental and somatic symptoms are discussed briefly. The next part is given over to the penal laws, both military and civil, from the German and international standpoints. Throughout the whole work, and especially in the last part, many examples of the important mental diseases are given in their practical bearing with the law. To the specialist this book is invaluable.

J. M. W.

General Surgery. Volume II of Practical Medicine Series for 1914. Edited by John B. Murphy. The Year Book Publishers, Chicago, 1914. Price \$2.

The newer things discussed at length in this very good volume are serum therapy of surgical infections, local and regional anesthesia, and bone surgery of the reconstructive as well as conservative type. The big problems of cancer and pre-cancerous conditions receive a great deal of attention as does the field of gastro-intestinal surgery. Arthroplasty would naturally be considered in *extenso* by Murphy, who has done so much in this field. There is much of interest in the field of operative technic, especially as regards suture material and skin disinfection. It is true of this volume as of the others in this series, that if the bibliography be followed up, the reader will be placed in touch with nearly all of the best and latest in the scientific literature of the subject.

G. H. T.

Modern Surgery: General and Operative. By J. Chalmers DaCosta, M. D., Samuel D. Gross Professor of Surgery, Jefferson Medical College, Philadelphia, Pa. Seventh edition, revised, enlarged and reset. Octavo of 1515 pages, with 1085 illustrations, some of them in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$6 net; half morocco, \$7.50 net.

In this seventh edition, revision of the textbook has been accomplished without materially increasing the size of the volume. One new chapter has been added in which the carotid gland and thymus have been briefly discussed. There are nearly a hundred new illustrations, the majority of which are skiagraphs. The illustrations are more remarkable for their quantity than their quality. Some are worthless—e. g., skiagraph intra-capsular fracture of the hip. Others are poorly chosen. The chapters which deal with operative treatment of fractures, laryngology and X-ray have been especially improved. The subject of surgery is exceedingly well covered for a single volume text. Many of the statements are dogmatic. Some subjects which would be treated in a larger volume by the presentation of opposing views have been dismissed by the statement of one view which meets with the author's approval. The style of the book is pleasing. The student and practitioner will find here entertaining and helpful reading.

J. P. P.

A Treatise on Clinical Medicine. By William Hanna Thomson, M. D., LL. D., formerly Professor of Practice of Medicine and of Diseases of the Nervous System in the New York University Medical College; ex-President of the New York Academy of Medicine, etc. Octavo volume of 667 pages. Philadelphia and Lon-

don: W. B. Saunders Company. 1914. Cloth, \$5.00; half Morocco, \$6.50.

This book attempts to deal in a practical manner with symptoms and treatment. The result, however, is frankly disappointing. The author makes no apparent distinction between mere opinions of his own and universally accepted facts. Most remarkable therapeutic conclusions are drawn from quite unsupported assertions regarding physiological and pathological processes. The classification of infectious diseases is based upon the manner of their spread, not upon etiology. This classification appears to us illogical and confusing. Also, actual errors occur: Typhus is grouped as "contagious directly," that is not by an "intermediate agent." But no mention is made of the work of Ricketts or of Nicole in demonstrating that the body louse is the infecting agent. In the article on "Hydrophobia" the author states that there is no treatment, and absolutely no mention is made of the Pasteur preventive treatment. On the whole, the book does not appear to be a valuable contribution to clinical medicine.

H. S. F.

The Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume III, Number 3. Octavo of 215 pages, 54 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Published bi-monthly. Price per year: Paper, \$8; cloth, \$12.

Contents:

Murphy's Clinical Talks on Surgical and General Diagnosis.

Tenoplasty; Tendon Transplantation; Tendon Substitution; Neuroplasty.

Tenoplasty on Wrist; Adhesions of all Tendons en Masse; Freeing and Wrapping of the Superficial Group in a Fat and Fascia Flap.

Traumatic Division of Flexor Tendons and Median Nerve; Tenoplasty and Neuroplasty.

Bony Ankylosis Between Ulna and Humerus Following Fracture of Oleocranon; Arthroplasty.

Nailing of Fracture of Surgical Neck of Humerus After an Unsuccessful Attempt to Secure Union by Bone Transplantation.

Fracture-Dislocation (Subacroid) of Head of Humerus. Reposition of Humerus Head into Glenoid Cavity as an Autoplastic Graft without Vascular Attachments.

Compound Fracture of Lower Third of Femur, Lower End of Upper Fragment Penetrating Knee-Joint and Resting Under Patella; Open Apposition with Lane Plate.

Carcinoma of Right Hip, Metastatic from the Breast. Excision. Bone Transplantation to Fill the Defect.

Carcinoma of Male Breast.

Osteoma of the Head of the Fibula; Removal of Tumor and Bone; Transplantation.

Penetrating Ulcer on the Lesser Curvature of the Stomach; Recurrent Hematemesis. Chronic Pericholecystitis. Posterior Gastro-enterostomy. Occlusion of Pylorus by Use of the Ligamentum Teres.

Sarcoma of the Ovary with Rotation of the Pedicle. Differential Diagnosis. Operation.

Ankylosis of the Jaw.

Anoci-Association. By George W. Crile, M. D., Professor of Surgery, School of Medicine, Western Reserve University; and William E. Lower, M. D., Associate Professor of Genito-Urinary Surgery, School of Medicine, Western Reserve University, Cleveland. Octavo of 259 pages, with original illustrations. Philadelphia and London: W. B. Saunders Company. 1914. Cloth, \$3.00 net.

In this latest book from a rather prolific writer,

we have the culmination of his theories and work. Whatever loopholes there may be in Crile's delineation of the principles of shock, and no matter what physiologists may say to the contrary, he certainly has proved his case clinically. That there is more than a kinetic phase to shock may readily be conceded. But the whole superstructure of anoci-association rests upon a firm basis and needs no apologies. It is an established surgical principle and a highly beneficent procedure. In the hands of some it fails to carry conviction. But this only denotes the quality of technic employed. Used in its fullest application and given the advantages of time, dextrous surgery and understanding it speaks for itself in terms of freedom from shock, comfortable post-operative patients and a low mortality. As usual, Crile puts his preachment in a concise and forceful style. He has changed his opinion somewhat regarding blood pressure as the one criterion of shock. He also admits that spinal anesthesia is admissible as a means of establishing anoci in injuries of the lower extremities. This only denotes that he is progressive in his ideas and that his theories are not ossified. The present status of nitrous oxide and oxygen anesthesia is adequately described. For one who believes that in surgery there is a psychic factor, that a gentle hand is desirable and that there should be a minimum of trauma this book is highly suggestive and of a definite aid.

S. P.

Modern Medicine. Its Theory and Practice. In

original Contributions by American and Foreign Authors. Edited by Sir William Osler, Bart., M. D., F. R. S., Regius Professor of Medicine in Oxford University, England; Honorary Professor of Medicine in Johns Hopkins University, Baltimore; formerly Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia, and in McGill University, Montreal; and Thomas McCrae, M. D., Professor of Medicine in the Jefferson Medical College, Philadelphia; Fellow of the Royal College of Physicians, London; formerly Associate Professor of Medicine in Johns Hopkins University, Baltimore. In five octavo volumes of about 1000 pages each, illustrated. Volume III. Diseases of the Digestive System—Diseases of the Urinary System. Just ready. Price per volume, cloth, \$5.00 net; half morocco, \$7.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

This includes diseases of the digestive and urinary systems. The first part on diseases of the digestive system has been improved by condensation and abridgment. It is to be recommended as an encyclopedia in which can be found short, well-written descriptions of the many common and unusual affections of the digestive tract. The article on diseases of the intestines by Stengel is particularly good in this respect. As a text upon the disturbances of digestion, it is disappointing, partly on account of the unfortunate arrangement—one author writing on the functional, another on organic disease of the stomach; and a third on diseases of the intestine. The redeeming feature is an introductory discussion of the subject as a whole by Stockton. There we see that the various parts of the tract are so closely related that it is very difficult to divide up the subject in this way.

"Revision" of a book on gastroenterology is almost impossible to-day as a large part of the subject must be rewritten—it has changed so rapidly under the influence of the X-ray and what Moynihan calls "the pathology of the living"—the experience of surgeons in huge modern clinics. Friedenwald's article on the functional diseases is a good exposition of the old school. Brinton prophesied fifty years ago that more and more of the neuroses would be transferred to the column of the organic troubles; and some, like hyper-

chlorhydria, are so shaky to-day that little short of an exploratory laparotomy can justify a man in treating them as primary diseases.

A number of headings seem to us rather superfluous. For instance: *Bulimia* and *Akoria*—in one, the patient eats voraciously because he is hungry and in the other he does the same because he never feels that he has had enough. One is discussed on page 132 and the other on page 156. In *Anorexia Nervosa* the patient starves herself because she has no desire for food; in *Sitophobia*, the patient fears food. Both headings belong more in a treatise on insanity, as in our experience these people are generally insane.

The revision has not brought out much discussion of the X-ray work which has done so much lately for diagnosis. Here and there we find statements like this (page 261), "The fluoroscope and skiagraphic picture aid the diagnosis." These are patches and not warp and woof as they should be. It does seem to us that references, or at least the year in which the author wrote, would be a great help to those who want an introduction to the literature. Especially when a mistake is made, as on page 288, where Greutzer is probably Grützner, it would be impossible to confirm the reference. Some articles contain them, others do not.

The writers on kidney disease have used their space well, and some recent additions are discussed, such as the functional tests.

The book reads easily and the proof reading has been done remarkably well. W. C. A.

Clinical Hematology: An Introduction to the Clinical Study of the So-called Blood Diseases and of Allied Disorders. By Gordon R. Ward, M. D., Fellow of the Royal Society of Medicine, Medical Society of London, etc. Octavo of 394 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$3.50 net.

The spirit and purpose of this work is to present blood changes as a unit only in the symptom-complex of the various diseases. The writer attempts also the difficult task of reclassification.

Very rightly are we warned against the considerations of blood diseases as entities per se, and the conditions accepted as true dyscrasias are most limited.

In the writer's opinion, the "microscopic" eye has lately been in such dominance that the zeal of laboratory investigation has overreached itself in those conditions where blood changes are manifest. "Blood examination is a good servant but a very bad master. It is true that we can sometimes diagnose a disease from a blood examination, but there is no condition of the blood which necessarily excludes either leukemia or Addisonian anemia, however rare the atypical case may be."

Chapters devoted to the afflictions of the red blood cells are the most complete and instructive; the various anemias are well grouped and most interestingly presented. There is also a tendency to clarify the hematologic nomenclature, as the tendency is to drop the term "polycythemia" and consider conditions of increased red blood cell production as either *erythrocytosis* or *erythraemia*, the one a relative physiologic and compensatory increase, the other the result of a hyperplastic process. So also is the tendency to consider as "pernicious" any anemia when it dominates the clinical picture. The anemias are broadly classified according to decreased cell formation and increased cell destruction—the rarer acute aplastic and congenital anemias, and the anemias of known cause (atrophic) are well differentiated from Addisonian anemia (so-called pernicious anemia). Emphasis is placed upon the fact that blood findings alone are distinctly misleading in determining

any type of anemia. The general symptomatology is given in sufficient detail to aid in differentiation. Chlorosis is not classified among the anemias, but as an affliction of the plasma. The blood volume is increased, also the cells, with a relative decrease in hemoglobin. The theory of deficient oxygen concentration is apparently not entertained by the writer.

In chapters concerning the white cells the leukemias are fully considered, although nothing new is presented. Leucocytosis, lymphocytosis, leukemia and eosinophilia receive but scant mention.

The various physical changes are considered as afflictions of the plasma or as a separate unclassified group. Hemophilia, peripura, hemoglobinemia, cyanosis, etc., are rather conventionally treated.

The work is entirely clinical. A few pages are given to technic and are rather weak. The chapters on anemia are exceptionally good. The book is written in good English and is of easy style.

E. A. V.

Ten Sex Talks to Boys (Ten Years and Older).

By Irving David Steinhardt, M. D. Published by J. B. Lippincott Co., Philadelphia and London. 1914.

Long before dramatic art realized that it had struck "Sex o'Clock" it was heard and heeded by the allied sciences, Medicine and Social Hygiene. In various European countries, societies for sex hygiene were formed and congresses held, and scientific periodicals founded to further and promote the knowledge thereof. The most notable in Germany was *Zeitsch f. d. Bekämpfung d. Geschlechtskrkhtn*, and *Zeitschrift f. Sexualwissenschaft*. The general public participated in these congressional discussions and crowded the membership lists, and very soon there arose a cry from all sides to abolish the old system of mysterious secrecy in matters pertaining to sex and propagation, and to substitute therefor a world-wide movement of general instruction and education. "The young must know, protect our youth," became the battle-cry. Stirred on by the cause, men like Wedekind enlisted the stage in the fight, and in his great drama, "Frühling's Erwachen" (The Awakening of Spring), brought the question before the general public, and illustrated in a most forceful manner the possibilities of evil arising from ignorance. Other voices arose for the protection of the young, and one of the most recent utterances, Dr. Steinhardt's book, "Ten Sex Talks for Boys," comes from the camp of the medicine-man and is dedicated to our grandfathers, fathers, husbands, brothers and sons.

The first two lectures contain an account of the anatomy and physiology of the male sexual organs, the next three treat of the venereal diseases and their ravages, illustrated by some very gruesome pictures, the sixth lecture is devoted to masturbation, also to the solemn assurance that satisfaction of the sexual desire in any form or at any period of life is absolutely unnecessary for the maintenance of health, well-being or happiness, followed by a warning that night emissions, acting as a kind of safety valve, should not be interfered with and not lead one to consult quacks. The seventh and eighth contain the usual excellent moral precepts for the conduct of boys among themselves, and toward their girl companions and friends, and their protection in a life full of temptations and snares, also the dangers of alcoholic drinks. The following chapter is devoted to marriage and the duties it imposes upon husband and wife, whilst the last lecture gives some brief instructions upon the hygiene of babyhood.

At the end of each chapter are ten quizzes, useful as a short résumé of its contents, to be answered by the student.

The book presents an honest effort to give boys

an idea of the anatomy and physiology of the male sexual organs, and to warn them against the consequences and perils of premarital sexual intercourse. It does it in a rather forcible way, and conjures up the spectre of fear with all its horrors and ugliness. The real process of propagation, its evolution from the lowest forms of life up to the highest, its revelations and wonders and the appeal to the child's soul through the world of the beautiful instead of through the hell of ugliness, finds no place in this book. We will not quarrel on that account with the author; he doubtless knew what he was doing, for the limitations of these lectures probably are intentional, but we would like to have somebody write a book on sex hygiene wherein the process of propagation is briefly discussed and illustrated in characteristic progressive steps from the lowest forms of plant- to the highest forms of animal-life, and upon the wonderful revelation of nature's process, base the appeal to the growing mind for a life of beauty and harmony. An effort in that direction has been made, by the writer of this criticism, in some lectures he has held before different bodies on "Sex Hygiene As It Should Be Taught." In a work like Dr. Steinhart's, calculated for the use of lay people, some statements may have to be made with more firmness than they deserve. Assuredly Professor Freund of Vienna and modern neurologists would hardly indorse the assertion, that the satisfaction of the sexual desire in any form or at any period of life is absolutely unnecessary for health or happiness. I add my feeble voice in protest alike. However, as one of the pioneers in sex instruction, the book has its merits, and we hope that future editions, which soon may be necessary, will add some of the improvements indicated. One of them would be the omission of Ernest Thompson Seton's colorless Sunday-school introduction.

J. R.

ILLEGALS PROSECUTED.

July 11th, 1914.

Dr. Charles B. Pinkham,
Secretary, Board of Medical Examiners,
San Francisco, Calif.

Dear Doctor—The Legal Department of Northern California submits the following as its report from June 15th to July 13th, 1914:

	Guilty	Disposition	Acquitted	Pending
Chow Juyan.....				1
Chow Let.....	1	\$600 and 6 mo.		
Yak Q. Gine....	1	\$600 and 6 mo.		
Tom J. Chong...	1	\$600 and 6 mo.		
	3	\$1800 Fines	None	1

The Legal Department also reports the discontinuance of the following medical institutions:

Triest Supply Co., Oakland.
Dr. Hall's Museum, Oakland.
Pacific Pathological Laboratory, San Francisco.

Respectfully,
LOUIS H. WARD.

Federal Indictments.

Homer C. Edwards, H. Gray Martin, I. C. Gobar, J. B. Ryle, C. M. Fong, R. J. O'Connell, Lee K. Chinn, C. M. Scott, C. A. Baxter, E. J. Rice, G. M. Freeman, Sr., J. T. Burns, T. Wah Hing, Ah Fong, Charles Low, Jang Kwai, T. Shue Wing, T. Foo Yuen, Arthur Penn.

SOCIETY REPORT

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

Section on Medicine.

Tuesday, August 4, 1914.

1. Symptoms of the Pregnancy Toxemias, Their Etiology and Treatment, J. J. Hogan. Discussed

by Thomas Addis, A. B. Spalding, R. K. Smith and Martin Fischer.

2. Rupture of the Perineum, A. B. Spalding. Discussed by Dr. R. K. Smith.

3. A Case of Funnel Pelvis, J. M. Slemmons. Discussed by L. I. Breitstein and R. K. Smith.

General Meeting.

Tuesday, August 11, 1914.

1. Demonstration of a patient who had a slow, progressive subdural hematoma, and who first showed marked mental symptoms and a left hemiplegia five weeks after a supposedly slight injury to the head. A craniotomy was performed by Dr. Howard C. Naffziger, disclosing the hematoma which extended from the anterior to the posterior pole of the brain with a depth of 5 cm. Complete recovery. M. B. Lennon.

2. The Early Diagnosis of Cancer of the Rectum, A. J. Zobel. Discussed by A. Newman, C. G. Kuhlman and J. Rosenstirn.

Section on Surgery.

Tuesday, August 18, 1914.

1. Some Causes of Frequent and Painful Micturition in Women, M. Molony. Discussed by Dr. Henry Meyer.

Section on Eye, Ear, Nose and Throat.

Tuesday, August 25, 1914.

1. Demonstrations and Reports. (a) False Membranae Tympani in Both Ears. M. W. Fredrick. (b) 1 Cast of Luc's Abscess; 2 Persistent Bleeding from Middle Turbinate, of Unknown Origin; 3 Polyneuritis Menieriformis Cerebalis of Frankl Hochwart, H. McNaught. (c) Demonstrations of Specimens of Carcinoma of Larynx and of Esophagus, H. B. Graham. (d) Demonstrations of Specimens: Glioma of Frontal Lobe and Sarcoma of Superior Tela Chorioidea, W. F. Schaller. (e) Report of Twenty Ear Cases Treated with Radium, M. W. Fredrick.

2. Sinusitis, G. W. Caldwell. Discussed by C. F. Welty and H. B. Graham.

PROGRAM NEVADA STATE MEDICAL ASSOCIATION.

Morning session, Tuesday, Oct. 13, 1914, 10 a. m.

Call to order by the President, A. P. Lewis.

Invocation, Rev. Samuel Unsworth.

Reading of Minutes.

President's Address.

Report of Delegates to the A. M. A.

Secretary's Report.

(1) Development of Public Health Work in Nevada, Mark F. Boyd, Reno. Discussion by S. L. Lee and J. A. Asher.

(2) The Perils of the Dispensing Doctor, Geo. L. Servoss, Gardnerville. Discussion by Herbert Colby and F. W. Owens.

Tuesday, 1:30 p. m.

(3) Some Phases of the Climate of Washoe County, Compared with Other Climatic Resorts. J. B. Hardy, Reno. Discussion by W. H. Wood and Geo. L. Ahlers.

(4) Things Medical (and otherwise) in Foreign Countries, J. E. Pickard, Reno.

(5) Nevada's Workmen's Compensation Act (correct title will be on program), Donald Maclean, Carson City. Discussion by C. E. Earley and J. J. Sullivan.

(6) Syphilis (full title will be on program), Harry E. Alderson, San Francisco (Stanford Medical School). Discussion by B. F. Cunningham and George L. Servoss.

Wednesday, 10 a. m.

(7) Rhinoplasty, with Clinical Demonstration,

Henry Bergstein, Reno. Discussion by J. LeRue Robinson and E. J. Howland.

(8) Streptococcal Infections (Especially of Nose and Throat), J. LeRue Robinson and O. P. Johnstone, Reno. Discussion by Drs. McKee and Welty, San Francisco.

(9) (Subject to be announced), Dr. McKee or Welty, San Francisco.

(10) The Use and Abuse of the Curette, H. Ostroff, Reno. Discussion by D. A. Turner and C. J. Richards.

Wednesday, 1:30 p. m.

(11) The Ideal Operation for Aneurysm (illustrated with X-ray and lantern slides), Geo. Rothganger, San Francisco (Stanford Medical School). Discussion by R. St. Clair and A. P. Lewis.

(12) Prostatic Calculi, W. L. Samuels, Reno. Discussion by H. Ostroff and Robert O'Neal.

(13) Uremia, H. J. Willey, Carson City. Discussion by Donald Maclean and B. Brown.

(14) The Importance of Diagnosis of Renal Diseases, Raymond St. Clair, Reno. Discussion by H. J. Willey and B. F. Cunningham.

Thursday, 10 a. m.

(15) Symptomatology of Brain Tumors (illustrated with X-ray and lantern slides), W. F. Schaller, San Francisco (Stanford Medical School). Discussion by J. B. Harris and Jno. A. Lewis.

(16) Surgical Treatment of Traumatic Epilepsy, J. B. Harris, Sacramento, Cal. Discussion by W. F. Schaller and Geo. McKenzie.

(17) The Relation of Milk to Public Health (illustrated with lantern slides), T. C. McCleave, Berkeley, Cal. Discussion by Mark T. Boyd and O. P. Johnstone.

(18) Joint Tuberculosis, Leonard W. Ely, San Francisco (Stanford Medical School). Discussion by R. St. Clair and H. Ostroff.

Thursday, 1:30 p. m.

(19) Cardio-Spasm (illustrated with X-ray and lantern slides), Rein K. Hartzell, Reno. Discussion by P. J. Mangan and C. W. West.

(20) X-Ray and High Frequency Therapeutics (exhibition of work being carried on), M. R. Walker, Reno. Discussion by S. K. Morrison and W. S. Holmquist.

(21) (Title to be announced), Martin Molony, San Francisco.

Election of officers.

The Entertainment Committee are arranging for two evening entertainments.

Unless some of our enemy's war vessels come up (or down) the Truckee and blockade us, this program will be presented complete.

Meetings will be held in the club rooms (Odd Fellows' Bldg.), as usual. Riverside Hotel will be headquarters.

NOTES FROM NEVADA.

Dr. W. H. Hood and family have returned from a month in Alaska.

Dr. and Mrs. Pickard have reached Toronto, on their way home from Europe.

Dr. H. J. Willey, from Kansas, has located in Carson City.

Dr. John Kitchen has returned from Colorado and is attending to Dr. Smith's work at Wonder while Dr. Smith is away for a month.

Dr. St. Clair and family spent the month of August touring California via auto. Dr. H. G. Knapp attended to Dr. St. Clair's work during his absence.

DEPARTMENT OF PHARMACY AND CHEMISTRY.

Edited by FRED I. LACKENBACH.

Since publication of New and Nonofficial Remedies, 1914, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with New and Nonofficial Remedies.

Arlico-Urease.—A standardized preparation of the ureolytic enzyme obtained from the soy bean. It decomposes urea into ammonia and carbon dioxide and is used in the estimation of urea in urine, blood and other body fluids. The ferment is added to a measured amount of urine and, after a time, the amount of ammonia formed is determined. Arlington Chemical Co., Yonkers, N. Y. (Jour. A. M. A., July 11, 1914, p. 165).

Urease-Dunning.—A highly potent and standardized preparation of the ureolytic enzyme obtained from the soy bean. It decomposes urea into ammonia and carbon dioxide. It is used for the determination of urea in urine, the amount of ammonium carbonate, formed from the ammonia and carbon dioxide produced is determined by titration with volumetric acid. Urease-Dunning is supplied only in the form of Urease-Dunning Tablets, containing 0.025 Gm. Hynson, Westcott & Co., Baltimore, Md. (Jour. A. M. A., July 11, 1914, p. 165).

Electrargol for Injection.—Ampules containing 10 Cc. electrargol in the non-isotonized condition. Comar & Co., Paris, France (Jour. A. M. A., July 11, 1914, p. 165).

Styptic Applicators, Alum 75 Per Cent.—Sticks tipped with a mixture of alum 75 per cent. and potassium nitrate 25 per cent. Admitted to the Appendix to New and Nonofficial Remedies. Antiseptic Supply Company, New York (Jour. A. M. A., July 11, 1914, p. 165).

Strychnine and Caffeine in Cardiovascular Disturbances.—Aided by a grant from the Council on Pharmacy and Chemistry, Dr. L. H. Newburgh has made a painstaking study of the action of strychnine and caffeine on cardiovascular disturbances. He concludes that, since the blood-pressure is not low either in persons showing grave symptoms of pneumonia or of those dying from that disease, and since it has been proved that the vasomotor arcs are normal in animals after death from pneumonia, it is logical to conclude that the vasomotor mechanism is not impaired in pneumonia. Strychnine does not improve or augment the work of the heart in persons suffering from broken cardiac compensation. It could not be shown that either strychnine or caffeine stimulated the cardiovascular apparatus in any of the conditions studied (Jour. A. M. A., July 25, 1914, p. 311).

Lithium Salts in Uric Acid Diathesis.—There is no reliable clinical evidence that lithium salts increase the excretion of uric acid by the kidneys, except as they exert a diuretic action. Experimental work has failed to show that lithium salts or the alkalis cause the absorption of deposited urates, gouty tophi, etc. The popular belief as to the action of lithia is founded on a misinterpretation of chemical facts. There is no reason why lithium salts should be expected to favor the solution of uric acid or urates in the tissues, the blood-serum or the urine (Jour. A. M. A., July 11, 1914, p. 184).

Administration of Fruit Acids.—The administration of the salts of the ordinary fruit acids is useful whenever it is desired to increase the alkalinity of the blood and diminish the acidity of the urine. Important investigations indicate, however, that it is scarcely feasible to produce any very marked effect on the alkalinity of the blood

in this manner. If the physician believes that the alkalinity of the blood is an important factor in the recovery from gout and rheumatism, the administration of the salts of fruit acids is appropriate. Citrates should be preferred to tartrates, for the latter are imperfectly converted to carbonates and, when given in large quantities, may cause irritation of the kidneys (Jour. A. M. A., Aug. 1, 1914, p. 420).

Radium in Cancer.—Radium can be used successfully to destroy growths on the surface whose entire extent can be exposed to its energy. Extensive growths involving deep structures and disseminated growths are beyond its control, and there is no reason to believe that they will ever be brought within its control. The effects and the limitations of radium in the treatment of cancer are the same as those of the Roentgen ray (Jour. A. M. A., Aug. 29, 1914, p. 787).

Tooth Detergents.—While many tooth preparations are alkaline from soap which they contain, it is probable that weakly acid preparations are to be preferred. As the antiseptics in tooth powders and washes do not remain in the oral cavity for any length of time, they cannot exert any beneficial antiseptic action. Antiseptics may even be harmful in that their periodical application may render the organisms which infect the mouth more hardy and vigorous (Jour. A. M. A., July 4, 1914, p. 50).

Assimilation of Calcium Phosphate.—Extensive experiments have demonstrated the availability of calcium phosphate for the bone formation of growing infants. This is a further proof of the power of the human organism to utilize inorganic substances (Jour. A. M. A., Aug. 15, 1914, p. 581).

Poisoning by Boric Acid Dressing.—While wet boric acid dressings are harmless, this is not true of dry, powdered or crystallized, boric acid. Alarming symptoms resulted from the application of dry boric acid to wounds caused by a burn (Jour. A. M. A., Aug. 15, 1914, p. 593).

Toxicity of Camphor.—A case is reported in which an 18 months old child was given, after a meal, a teaspoonful of camphorated oil (linimentum camphorae) by mistake. While this dose must have contained about 15 grains of camphor, no untoward symptoms were observed (Jour. A. M. A., Aug. 15, 1914, p. 579).

Sodium Fluoride.—While the poisonous character of fluorides is recognized, the use of sodium fluoride as a food preservative is still considered. As a result of experiments, F. Schwyzer concludes that fluorine preparations are poisonous even when administered in very small doses (Jour. A. M. A., July 25, 1914, p. 323).

Mixed Vaccine and Phylacogens.—The unscientific character of mixed vaccines and of the mixed filtered products of a number of vaccines marketed as "Phylacogens" has been especially emphasized and the danger from their indiscriminate use pointed out. Recently John F. Anderson held that the claim that the combination of dead bodies or the filtered products of a number of different bacteria are useful for the treatment of certain diseases with a specific cause, closely approaches quackery. Victor C. Vaughan also has pointed out the danger of the indiscriminate use of bacterial products and observed that untoward results are rarely reported. Physicians who are tempted by the optimistic statements of manufacturers to give complex bacterial products a trial, should remember that the warnings of disinterested scientists are of far more value than uncritical clinical reports put out under commercial auspices (Jour. A. M. A., Aug. 29, 1914, p. 785).

Pertussis Vaccine.—The Bordet-Gengou bacillus is recognized as the cause of whooping cough and a vaccine prepared from it is used with success, although it is the general experience that when a child is already in the stage of incubation, the

vaccine will not prevent the development of the disease (Jour. A. M. A., Aug. 29, 1914, p. 796).

Scarlatina Vaccine.—The so-called scarlatina vaccine is said to consist of killed streptococci from scarlet fever cases. While the infectious agent of scarlet fever has not been established, the close association of streptococcus with scarlet fever has been considered a warrant for the use of anti-streptococcus serum, and various vaccines prepared from this organism, in the treatment of scarlet fever (Jour. A. M. A., Aug. 29, 1914, p. 796).

Vaccine and Serum in Hay-Fever.—A serum for the treatment of hay-fever is described in New and Nonofficial Remedies. Theoretically there can be no vaccine treatment of this disease for the reason that it is produced, not by bacteria, but by the pollen of various plants. The use of vaccines derived from the micro-organisms found in the nasal secretion are still in the experimental stage (Jour. A. M. A., July 25, 1914, p. 340).

Shortage of Drugs.—In view of possible drug shortage, physicians should bear in mind that many proprietary foreign preparations are made and sold in the United States under their descriptive names, thus dionin as ethyl morphine hydrochlorid, urotropin as hexamethylenamin and diuretin as theobromin sodium salicylate (Jour. A. M. A., Aug. 22, 1914, p. 692).

Wine of Cardui.—While the Chattanooga Medicine Company asserts that in the manufacture of Wine of Cardui no more alcohol is used than is necessary to preserve it, experiments indicated that the preparation contains only water-soluble constituents and that a non-alcoholic preparation might easily be prepared. Also, despite the owner's assertion that Wine of Cardui cannot be used as a tippie, large doses were taken experimentally with no observable effects other than those of alcohol; further, letters from physicians assert that the preparation is used habitually, evidently for its alcohol effects—probably unconsciously. The exploitation of Wine of Cardui is vicious and the public should be apprised of the facts (Jour. A. M. A., July 18, 1914, p. 258).

Veracolate, Marcy & Co.—Veracolate is a proprietary said to consist of the salts of the bile acids, sodium glycocholate and sodium taurocholate, with cascara and phenolphthalein. While bile salts are said to increase the secretion of bile, it is doubtful whether this increase in the secretion of bile is of value in the treatment of gall-bladder affections. There is no occasion for the use of bile salts combined with fixed quantities of cathartics, which should be added only when they are needed. The advertising claims for Veracolate show a tendency to extravagant statements (Jour. A. M. A., Aug. 1, 1914, p. 420).

Hectine.—Hectine, referred to in newspapers as a treatment for hay-fever, is a French proprietary, stated to have a composition similar to that of atoxyl. If its composition is in accordance with the claims its action probably is no better than that of atoxyl. Arsenic is used in the treatment of hay-fever with success in some cases (Jour. A. M. A., Aug. 8, 1914, p. 502).

Robinol.—Robinol is a glycerophosphate mixture exploited by John Wyeth & Brother on the discarded theory that certain diseases are due to a loss of phosphorus from the body and that this phosphorus deficiency is best remedied by administration of glycerophosphates. There is no evidence that glycerophosphates when administered act differently than do inorganic phosphorus compounds. At all events, if phosphorus deficiency really occurs, it would be more rational to supply the needed phosphorus in the form of foods rich in phosphorus such as milk and eggs (Jour. A. M. A., July 4, 1914, p. 49).

Sevetol.—There was a time when physiologists thought that fats were absorbed into the blood in the form of a fine emulsion. It is now known

that fat enters the blood after having been split into glycerol and fatty acid, the latter being, to a large extent, combined with alkalies in the form of soaps. Making use of the discarded theory Sevetol, put out by John Wyeth & Brother, is presented to the profession with the claim that it is a very fine emulsion of fat and because of this is readily absorbed. While Wyeth & Brother would have physicians believe that Sevetol is readily absorbed and digested, it is evident that the amount of Sevetol which can be taken is limited not only by the power of assimilation but also by the power of digestion (Jour. A. M. A., July 4, 1914, p. 49).

Warning Against Worthless Antifat "Cures."—Numerous inquiries received recently by the U. S. Department of Agriculture indicate that promoters of so-called obesity remedies and fat-reducing cures are using an old trick dressed in new clothes to deceive fat people into spending money for worthless or dangerous preparations. The advertisements appeal to the vanity of people who wish to regain graceful figures and also to the business necessities of those who become so fat that they can no longer do their work efficiently.

In order to be able to give a definite reply to many people inquiring about specific remedies, the drug specialists of the Bureau of Chemistry recently conducted a series of tests with a number of nostrums of this character on employees in the Department who wished to lose surplus flesh without injuring their health. One of the most widely advertised so-called prescriptions for reducing flesh was tried for a period of six months. The result was that two of the subjects under experimentation were obliged to stop after taking the medicine for two or three weeks because of its injurious effect. The third subject gained $2\frac{1}{2}$ pounds instead of losing flesh. Another of the so-called remedies of a "Great Obesity Specialist" was tried. The subject scrupulously followed the diet list which accompanied this remedy and faithfully carried out the system of exercises recommended. After six months' treatment there was a reduction of 18 pounds of flesh but this the experimenters attribute to the fact that the subject ate no bread, butter, starchy food, pastry, sugar or candy while under observation. The first month after discontinuing the treatment the subject gained 10 pounds, and in three months was back to the original weight recorded at the beginning of the treatment.

These preparations usually contain thyroids and a laxative. The thyroids may prove very hurtful unless given under the advice of a physician personally familiar with the subject's physical condition. The Department has on record an instance where death has followed overdoses of preparations containing thyroids. Other preparations contain poke root (phytolacca), a poisonous drug, and others, analysis shows, contain nothing that could possibly have the slightest effect in reducing flesh.

No other class of preparations exploited to humbug the people has a wider sale, and in nearly every instance they are absolutely worthless. In many cases where patients seem to lose weight this result is attributed to the hot baths and the diet and exercise recommended as an accompaniment in taking the medicine.

The only ways that the Department's specialists know of safely reducing flesh are rigid dieting, and strenuous exercise, and those to be effective must be continued over a long period of time. The fat reducing patient must eliminate from his diet fats, starchy foods and sugar. In many cases it is not wise because of other physical conditions for fat people to attempt any rapid reduction in weight. As a general rule diet and exercise are best directed by a skilled physician. Loss of flesh is by no means a blessing if accompanied by loss of health, energy or strength.

The Post Office Department has been instru-

mental in silencing some of these promoters by issuing fraud orders against them and denying them the use of the mails. The Department of Agriculture can only warn the people to beware of all such preparations containing such claims, for in the knowledge of all drug specialists at the present time there is no preparation that can be depended upon to reduce flesh in any marked degree without doing injuries.

WHAT CONSTITUTES FIRST AID?

To the Editor:—We are having a controversy with a liability company as to what constitutes first aid in fracture cases. We maintain that this includes the reposition of the fracture and the X-ray pictures necessary for its successful reduction. The liability company says that radiographs cannot be included in first aid. Our attorney tells us that there has been no ruling on that point in this state. Please tell us the ruling in Illinois or adjoining state or advise us in any other way on this point (What constitutes first aid?), as we are inclined to make a test case of this rather than accept the niggardly offer of the liability company.

T. J. BILLION, M. D., Sioux Falls, S. Dak.

Answer.—What constitutes "first aid" is a question of considerable importance, owing to the great increase of accident and liability insurance. So far as we are aware no judicial decision has been handed down defining "first aid"; but a brief reference to the manner in which the term came into general use will aid one in arriving at a clear understanding of the scope of its meaning. When a person is accidentally injured or suddenly taken ill, it is perfectly natural for those about him to render any aid or assistance within their knowledge and power. The humanitarian principle underlying such service has been long recognized and has inspired the formation of societies of laymen, the members of which receive a certain amount of instruction in order that they may be better able to render such service in an emergency. These societies are usually called first-aid societies, the idea being to give aid pending the arrival of a physician or surgeon.

The importance of doing something to relieve the injured, and particularly in the case of wounds to protect them from infection as much as possible, has caused most industries, railroads, etc., to provide first-aid outfits and to have certain of the men instructed in giving first aid until the patient can be turned over to a physician, or can be removed to a settled place such as his home or a hospital. There can be no question that the service thus rendered by laymen in such emergencies is "first aid"; but now suppose the one nearest at hand to the injured is a physician, or suppose that some one with no other authority than that of trying to do something to aid one in trouble summons a physician. Does the physician give "first aid," and if so, what is included in "first aid"? Should the patient require anything more than a momentary service it is perfectly evident that he must be removed to some suitable place such as his home or a hospital before any definite line of treatment can be undertaken.

Such temporary measures, then, as may be used to enable or to facilitate the removal of the patient to some settled place where a definite line of treatment may be instituted constitute "first aid," whether it be given by a physician or a layman. The fact that the physician's efforts may be more intelligent than the layman's does not change the principle.

When the patient has reached his home or a hospital, or other place, and is turned over to his own physician, or to the hospital surgeon, or wishes to continue the services of the physician first called, then "first aid" ceases, and definite treatment be-

gins. In large cities many patients suffering with injuries are brought to a hospital without ever having received "first aid," unless the mere act of transporting them may be considered "first aid." After such a patient reaches the hospital he does not receive "first aid," but definite treatment is instituted; and by the mere fact that the first thing done for him is done at the hospital, that first thing does not constitute "first aid." "First aid," then, may be defined as the temporary measures carried out in emergencies by any one, layman or physician, preliminary to the institution of a definite line of treatment by the physician in charge.

With this conception of "first aid," it seems clear that the taking of roentgenograms and the permanent setting and dressing of fractures is not "first aid," but definite treatment.—Journal A. M. A.

PUBLIC HEALTH SERVICE.

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, San Francisco, Cal., on Monday, October 19, 1914, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

Candidates must be not less than 5 feet 4 inches, nor more than 6 feet 2 inches, in height.

The following is the usual order of the examinations: 1, Physical; 2, Oral; 3, Written; 4, Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and that they will serve wherever assigned to duty.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital.

The examination usually covers a period of about ten days.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments.

After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Assistant surgeons receive \$2000, passed assistant surgeons \$2400, surgeons \$3000, senior surgeons \$3500, and assistant surgeon generals \$4000 a year. When quarters are not provided, commutation at the rate of \$30, \$40 and \$50 a month, according to the grade, is allowed.

All grades receive longevity pay, 10 per cent. in addition to the regular salary for every five years up to 40 per cent. after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."

EIGHT-HOUR LAW FOR NURSES.

At the last meeting of the Association of Superintendents and Training Schools of the Hospitals in San Francisco and Alameda counties, the motion was made and seconded that copies of the proposed universal eight-hour law be sent to Training School Superintendents in California, Alumni Associations, Association of Hospital Workers, County and Nurses' Association, and the State Medical Association, requesting them to forward their objections, and take action to defeat this proposed law.

Very truly yours,
SARAH C. OLMSTED, R. N.,
Secretary.

POST GRADUATE COURSE FOR NURSES.

There is now a movement on foot at St. Luke's Hospital to inaugurate a systematic Post Graduate Course for Nurses. This course is not intended to be one by which nurses are simply instructed in the modern methods now in use in hospitals, but is intended primarily to instruct graduate nurses in the management and control of different departments, with the view of training those who take the course for the positions of Superintendents of Nurses, Dietitians, Hospital House-keepers and Superintendents of small hospitals.

Miss Amy Elizabeth Pope, for many years connected with the Presbyterian Hospital in New York, and one of the best and most widely known educators in the nursing field, has consented to institute this course, and we feel that it will be a great benefit to the nurses of California, in giving them an opportunity to fit themselves for executive work, and for assuming large responsibilities.

TRAVEL STUDY CLUB.

The Travel Study Club of American Physicians, which made a successful study tour of Europe last year, has completed the plans for its 1915 study tour to the A. M. A. meeting in San Francisco, Honolulu, Japan, the Philippines, China, with optional return via Siberia and Europe, or via Canada. This being the first party of American physicians ever visiting the Far East and the new possessions of the United States, a most cordial welcome can be expected by authorities and members of the medical profession. The Travel Study Club would like to make its enterprise as representative as possible and asks all those interested to communicate with the secretary, Dr. Richard Kovacs, 236 East 69th street, New York.

NEW MEMBERS.

Carico, J. W., Cloverdale.
Behlow, Wm. Wallace, San Francisco.
Williamson, Norman Eccles, Sacramento.
Phillips, La Forrest E., Palo Alto.
Leach, Chas. N., San Jose.
Sawyer, Frank Wade, Paso Robles.
Zaiser, Harry Edgar, Santa Ana, Cal.
Dixon, R. E., Hanford, Cal.
Sperry, Mary A., San Francisco.
Herrick, A. B. Jr., Santa Rosa.
Bixley, W. E., Sebastopol.

DEATHS.

Gladding, Chas. F., Oakland, Cal.
Safely, Grant (Died in Sacramento).
Swift, S. B., Stockton.
Freeman, Eugene Nesbit, Grafton.
Walker, A. D., Arlington.
Pinney, Edward (Died in Duarte, Cal.).
Winslow, Chas. E., Monrovia.
Huning, F. H., Ventura, Cal.
Hazlett, I. W., San Bernardino.
Smith, W. Gray, Oakland.
Mason, W. M., Lodi.
Turner, G. Burton, San Francisco.